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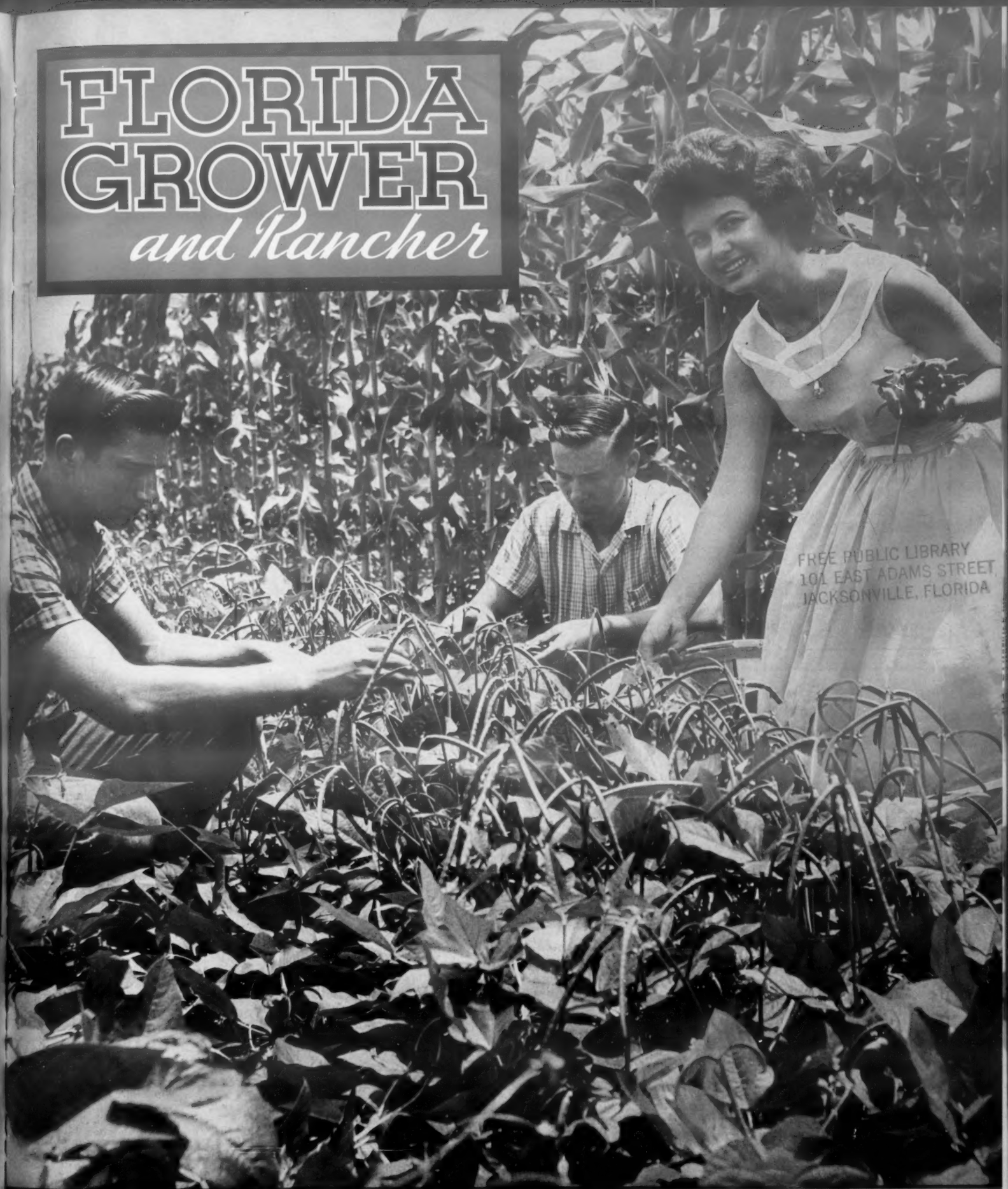

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The Cover . . .

Our August cover scene was taken at Pinecrest High School in southeast Hillsborough County. The excellent crop of peas in the school's FFA plot is typical of the farm training that Jacques D. Waller, vocational agriculture adviser, is giving youngsters in that area.

The personable pea-pickers on our cover are John Varnum and Dan Purvis, two of the school's vo-ag students, and Pinecrest's pretty Shirley Gray.

Contents . . .

Good Plans for Buildings 5
Florida Poultry Institute 6
Agricultural Outlook 8
Citrus Pest Control for Fall 10
Fertilizing Vegetables for Maximum Yields 11
Fertilizing Row Crops 12
Pasture Fertilization and Management 13
Farm-Home Section 18-20
Florida Farm Market Page 22
Standby Power for Dairies 23
Nitrogen Ups Melon Yields 24
Citrus Close-Ups 28

"Right on time with the mail."

How smart are YOU?

1. What is the United States' most southernmost point?
2. If a murder tale is a "gory story", what is a loud noise at night?
3. What is meant by the mark-up of merchandise?
4. Musically speaking, what is a vamp?
5. What does the foreign phrase *sub rosa* mean?
6. According to a proverb, what would happen if fools went not to market?
7. What is a closet drama?
8. Does mahogany come from one particular tree?
9. What is symmetry in a picture?
10. Is the hard-shelled crab ever a soft-shelled crab?

(Answers on Page 33)

FLORIDA GROWER and RANCHER

TAMPA, FLORIDA — AUGUST, 1961

Vol. LXIX, No. 8 — Whole No. 1367
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Coming Events

Aug. 7-11: 28th annual Florida Citrus Institute, Camp McQuarrie.
Aug. 14: Glades Feeder Calf Sale, Belle Glade.
Aug. 14-16: 20th annual Florida Poultry Institute, Camp McQuarrie.
Aug. 15: Central Florida Feeder Sale, Lakeland.
Aug. 18: Florida Cattlemen's Institute, Camp Cloverleaf.
Aug. 21: Mid-Florida Feeder Calf Sale, Orlando.
Aug. 22: Sarasota Feeder Calf Sale, Sarasota.
Aug. 24-25: Annual meeting Florida Association of Soil & Water Conservation District Supervisors, Hillsborough Hotel, Tampa.
Aug. 30: Florida Guernsey Sale, Orlando.
Sept. 1: Hereford & Crossbred Feeder Sale, Gainesville.
Sept. 3-5: Gainesville Quarter Horse Show, Gainesville.
Sept. 5: Highlands Feeder Calf Sale, Wauchula.
Sept. 7: Leon County Feeder Calf Sale, Monticello.
Sept. 8: Florida Angus Feeder Calf Sale, Gainesville.
Sept. 9: Florida Jersey Sale, Orlando.
Sept. 19: 12th annual Citrus Processors' meeting, Lake Alfred Citrus Experiment Station.
Sept. 27-29: FFVA convention, Hotel Americana, Bal Harbour (near Miami Beach).

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Good Plans for GOOD BUILDING

By T. C. SKINNER

Extension Agricultural Engineer
Florida Agricultural Extension Service

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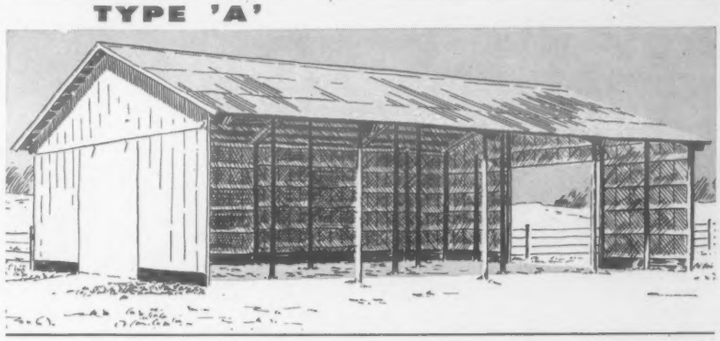

Pole Buildings Are Popular

When a new farm building is planned, many farmers, ranchers and growers consider pole construction. Properly-designed pole buildings are attractive, durable, and functional. In Florida, pole buildings have been very popular, especially for machinery or hay storage, feeding barns, etc.

Pole buildings, like those constructed of other materials, should be properly designed and erected. Too often these buildings are constructed without benefit of plan or design — and invariably the owner is unhappy with the results.

The writer has available a number of pole barn plans of good design. These plans are very flexible and can be adapted to a variety of uses.

Here illustrated is Plan 5830 which provides a building 39 feet wide and 60 feet long. It has a clearance of 13 feet at the eaves.

Length of all the pole buildings described in the available plans may be varied in units of 15 feet. The ridge line of this building is centered between the interior pole rows.

Should you be interested in this plan, contact your local county agent or the writer. Ask for Plan 5830.

Pole building Plans 5831 and 5832 are also available. Upon request, they will be sent to you without charge.

Florida's Light Soils Need Lime

Light soils in Florida's humid regions tend naturally to become more and more acid with time.

Especially is this true in times of heavy rainfall during the summer, according to Dr. W. L. Pritchett, soils chemist with the Florida Agricultural Experiment Station, Gainesville.

Water passing through our light soils tends to leach out the basic elements, particularly calcium, magnesium, and potassium. Since these bases are also plant nutrients, we promote their removal by crops we harvest.

In recent years, the soil acidity problem has become more acute because of the use of higher and higher rates of mixed fertilizers. These fertilizers, the soil chemist points out, are themselves usually acid-forming.

These fertilizers are becoming more and more concentrated. This is especially true of nitrogen materials such as the ammonium nitrate and ammonium sulfate applied to lawns and most agricultural crops.

Heavy applications of these fertilizers add to the acid in the soil. Too, they result in more rapid removal of the bases by crops through increased production.

Liming, explains Dr. Pritchett, plays a number of roles in the soil. It neutralizes soil acidity, for one thing. It also helps overcome toxic conditions in certain cases where chemical residues have accumulated.

In addition, liming promotes the availability of other plant nutrients, increases the efficiency of fertilizers, and encourages favorable bacterial activity in the soil.

"Consequently" the soils chemist reports, "the practice of liming — through its influence on the availability and the uptake of plant food by growing crops — may be considered the cornerstone of efficient crop and livestock production."

Soil and Water Management Leaders

Murdock Leroy Gillis of the Ponce de Leon Chapter, Westville, walked off with the top Soil and Water Management Award at the June convention of the Future Farmers of Florida. The west Florida youth (second from right) received a $100 cash award from the Future Farmer Foundation and a $100 savings bond from the International Harvester Dealers in Florida. G. M. Nation (extreme right), district manager of the International Harvester Company, Jacksonville, also presented district awards to 17 other FFA members.

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Florida Poultry Institute Program Speakers Announced

Preliminary program plans have been completed for the 20th annual Florida Poultry Institute which will be held August 14-18 at Campa McQuarrie.

"Education and Research—Keys to Poultry Progress" will be the theme of the week-long institute. Numbered among the 30 scheduled speakers are some of the state's and the nation's top-ranking specialists.

Registration will begin at 2:30 P.M. on Monday, August 14. Lecture sessions, however, will not begin until the following morning.

Slated to convene at 8:45 A.M., morning programs will be held Tuesday through Friday. Afternoon lecture periods will run from 1:45-4:30 P.M. Tuesday-Thursday.

Florida State Poultry Producers Association's officers and directors will meet at 4 P.M. on Tuesday, August 15th. Later that same day, at 8 P.M., there will be a meeting of the Florida Egg Commission.

Complete information about the institute and accommodations may be obtained by contacting Julian S. Moore, Extension Poultryman, Florida Agricultural Extension Service, Gainesville.

Institute topics and speakers tentatively slated to be presented on Tuesday, August 15 are as follows:

"Cycling Along"—Dr. Ralph A. Eastwood.

"The Government Feed Grain Program and Its Influence on Poultry Feed Supplies"—J. Russell Henderson.

"Another Year of Poultry Business Analysis Studies" — Clifford Alston.

"Florida's Reorganization of the Department of Agriculture"—Frank W. Risher.

"The Poultry and Egg Law, a Joint Responsibility"—Guyton Williams.

"Work of the Advisory Council and Technical Committee, Department of Agriculture"—A. G. (Lou) Mazourek.

"Research—What It's Worth to the Poultry Industry" — Dr. J. R. Breckenbach.

"The Ever-Lasting Poultry Race" —Dr. A. William Jasper.

"Changes in Agriculture"—John P. Weeks.

Wednesday program topics and speakers will include:

"Egg Shell Quality—What Can You Do About It?" — Dr. R. H. Harms.

"Correct Use of Common Poultry Drugs"—Dr. Donald D. Pate.

"Sanitation Programs for the Farm"—W. R. Jenkins.

"Prevention and Control of Coccidiosis on Laying Farms"—Dr. W. P. Williams.

"Accentuate the Positive"—Lloyd Geil.

"Education—What's Its Worth to the Poultry Industry?"—Dr. Marshall O. Watkins.

"What Makes A Farmer A Success"—Alex Gordeuk.

"Roaming Over Central Florida" —Alan Schryver.

Thursday program participants are slated as follows:

"What's New in House Fly Control"—James E. Brogdon.

"Strategy for Survival"—William P. Clower.

"Sunnyside Up"—Jack James.

"Common Problems Occurring in Southeastern Commercial Egg Flocks"—Dr. Donald D. Pate.

"The Economics of Using a Second-Year Layer"—Dr. Charles K. Laurent.

"Developments in Controlled Environment for Poultry"—Dr. J. M. Vandepopuliere.

"The Egg and You"—L. W. Cassel.

"Can You Improve Your Efficiency?"—Bernard Lester.

Winding up the 1961 Poultry Institute will be the following speeches scheduled for delivery on Friday morning:

"Florida's Random Test: The New Facilities"—N. R. Mehrhof and A. W. O'Steen.

"The Breeder's Obligation to the Producer"—Harvey W. Taylor.

"Role of the Field Service Man" —W. R. Jenkins.

"The Normal Appearance of the Internal Organs of the Chicken"—Dr. R. E. Cook.

"A Look Ahead at Poultry House Construction"—Tom C. Skinner.

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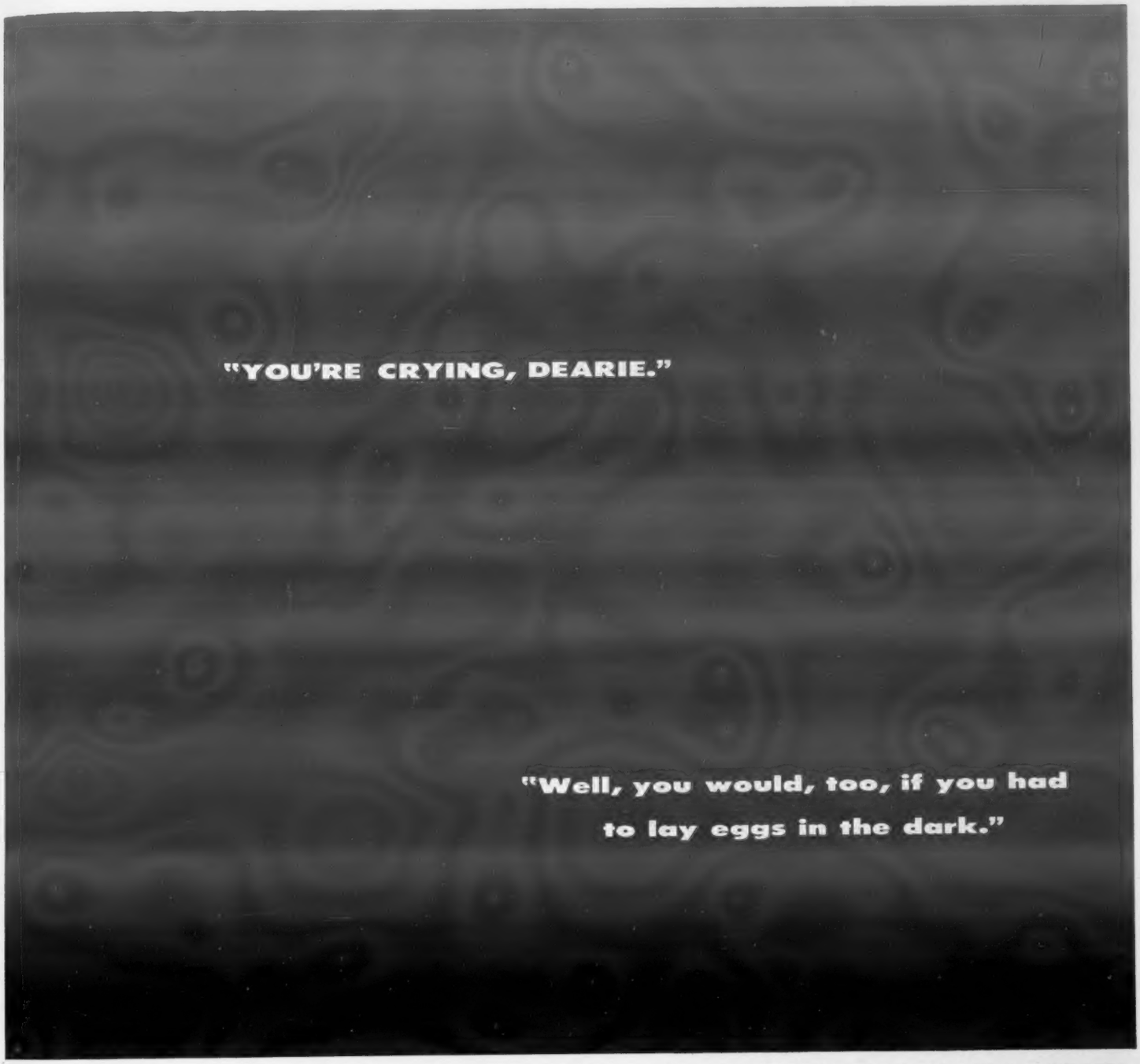

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Agricultural OUTLOOK

Vegetables Moderately less fresh vegetables were available in early summer. But the amount was still substantially more than the 1950-59 average.

Production prospects for early summer sweet corn, cucumbers, onions, and tomatoes were smaller. Cabbage, celery, and green pepper output was close to year-ago levels; that of early summer carrots was larger.

Supplies of both watermelons and cantaloups during July were expected to be materially smaller than in 1960. Smaller acreages and unfavorable weather in some areas cut back output of these crops.

Early summer watermelons were down 12% from last year. Cantaloups are expected to be down 8%.

Cattle Fed cattle slaughter in the first half of 1961 was about 4% above the same period last year.

Slaughter for the rest of 1961 is likely to be higher than a year earlier. However, the year's total will probably not be large enough to halt the expansion in inventory numbers.

Prices of fed cattle have held relatively steady in recent weeks, following a $5 decline from their January high.

Broilers Broiler prices in mid-June were 12.8 cents per pound, the lowest since the monthly price record was begun in 1940.

Through July, only slight improvement in broiler prices was expected. This is because chick replacements in the 22 leading broiler-producing states remained high in May, the month relevant to July slaughter.

Hogs Hog production is close to 1960 levels but is expected to move above them for the remainder of the year. The 1961 pig crop is likely to be 5% larger than that of 1960.

Prices of hogs this summer will probably average close to those of last summer. However, prices this fall and winter will be a little lower than a year earlier.

Turkeys Turkey production for the year will be at least 25% above the 85 million turkeys raised in 1960. Though seasonally light, turkey slaughter so far this year exceeds that of 1960 by more than 50%.

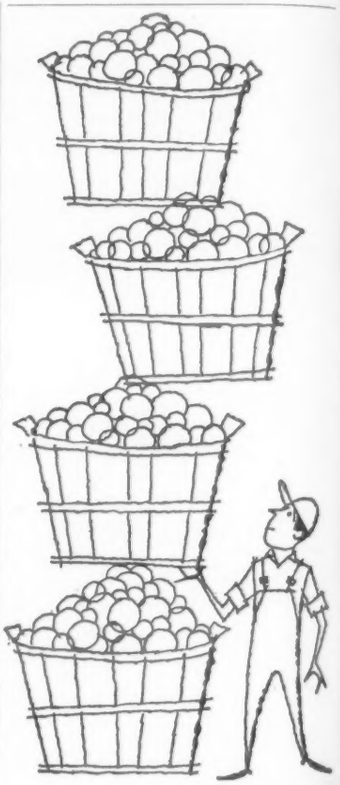
Supplies will continue above last year during the major marketing season.

Eggs Compared with a year ago, an increase in egg production and probable prices this fall will likely average lower than last fall. However, this will not be to the extreme extent that had earlier been feared.

Although hatchery output of replacement type chicks in May and June was lower than a year ago, it was 19% higher from January through April.

(EDITOR'S NOTE: The above was adapted from the July "Agricultural Situation" report issued by the USDA.)

The only advantage of living in the past is that it's cheaper.



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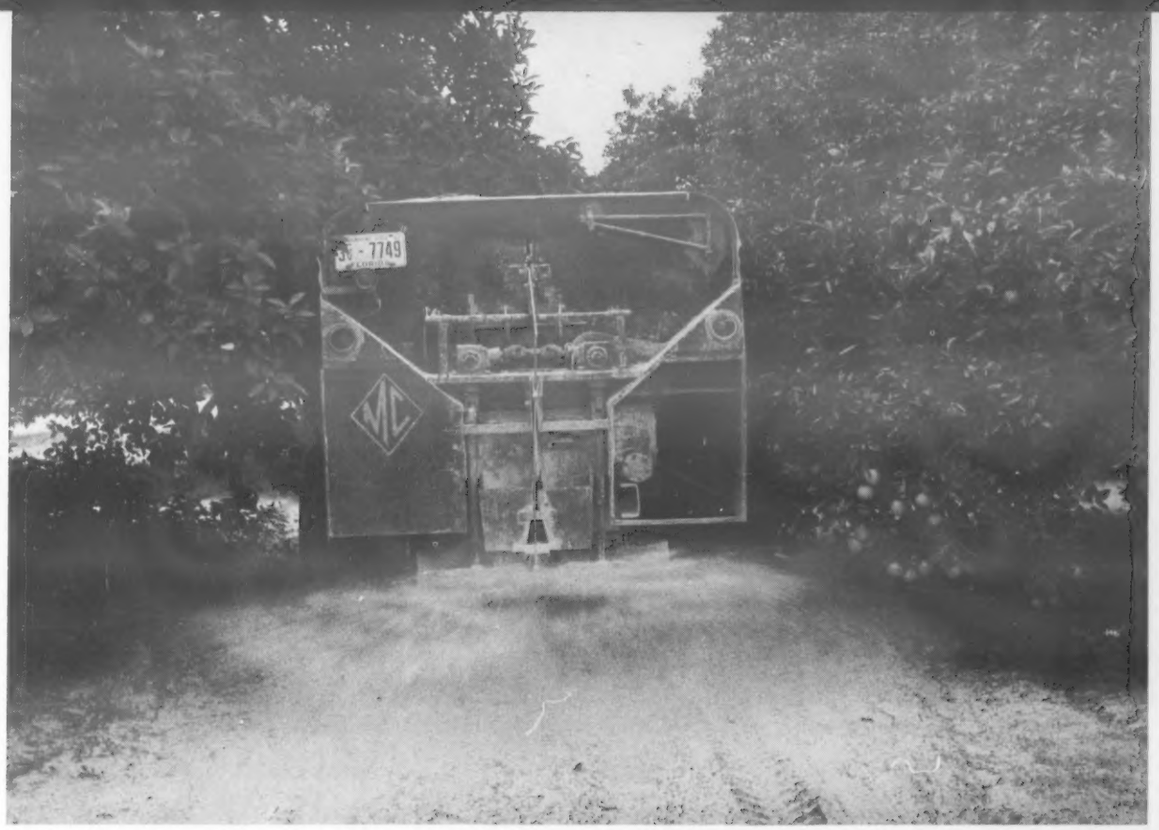

Citrus Fertilization - A Dynamic Field

By
DR. HERMAN J. REITZ
Horticulturist in Charge
Florida Citrus Experiment Station

Virtually every scientific fact known about the nutrition and fertilization of citrus trees in Florida has been gained in the last 40 years. This is not surprising when it is considered that most of the scientifically trained people who have ever existed in the world are alive and at work today.

Agricultural progress has been tied to the group of scientific personnel who apply their talents and energies to agricultural projects. The increase in agricultural productivity is one of the United States' foremost success stories.

In these 40 years, much progress in citrus fertilization has been accomplished. The need of citrus trees for 12 essential soil-supplied elements has been established. The visual symptoms of deficiency levels of most of these nutrients have been clearly identified. The composition of leaves associated with the appearance of deficiency symptoms has been reasonably well established.

Moreover, methods have been determined for supplying each of these chemical elements through the soil. The influence of soil reaction on nutrient element availability has been determined. To a reasonable degree, the fate of all elements applied in fertilizer mixtures (as fixation, slow availability, or leaching) has been established. And the current over-all efficiency of utilization of the various applied elements has been determined.

To the practical citrus grower, the developments mentioned above have meant considerable changes in fertilizer practice. No longer does fertilizer consist only of low analysis mixtures containing nitrogen, phosphorus, and potassium. In appropriate situations, fertilizers now may contain as many as nine important nutritional elements and be produced from high analysis, economical source materials.

Current recommendations of the state and federal research agencies are found in Florida Agricultural Experiment Station Bulletin 536A which was published in 1959.

For bearing trees, these recommendations provide for either two or three applications of fertilizer per year. These applications basically should contain nitrogen, potassium, and magnesium, the elements most subject to removal from the soil by leaching.

Recommended for central Florida oranges are 0.4 lb. nitrogen and 0.4 lb. potash per box of fruit annually, up to a maximum of 300 lbs. per acre. For grapefruit, the applications should be 0.3 lb. of each. The magnesium recommendation is 0.1 to 0.4 lb. water soluble MgO per box, with the higher rates being used when high calcium lime is applied or for seedy varieties of fruit.

Phosphorus, manganese, copper, and zinc tend to accumulate to various degrees in the soil. Consequently, their usage is in part dependent upon the degree of accumulation from the past fertilizer program. Zinc can most reliably be supplied through zinc sprays.

Details of the recommendations are available in Bulletin 536A. Free copies of this Experiment Station publication are available from County Agricultural Agents' offices.

In the light of past accomplishments, a reasonable question would be: "What else can be learned in this field?" The answer is that we can find a more satisfactory solution to the problem of making a specific recommendation for a specific grower in each specific situation.

Present fertilizer recommendations are general in nature, assuming that most citrus groves of most varieties on most soils could best use the same fertilizer program in all years. This must probably be conceded to be an erroneous assumption.

Tangelo growers and research workers, for example, have noted the appearance of nitrogen deficiency symptoms in tangelo trees during the winter. Yet the nitrogen program applied to the tangelo grove would apparently be quite adequate for other citrus varieties.

Further, data are being collected to determine whether all orange varieties require the same fertilizer rates for maximum productivity and to learn what grapefruit requires in comparison to oranges.

Refinements will be made to fit different objectives of different growers. Very probably, a fertilizer program can be devised that will fit the needs of the grower who wishes to concentrate on the express-fruit shipment outlet,

(Continued on Page 16)

Citrus Insect Control for Fall 1961

By
R. B. JOHNSON, W. A. SIMANTON and W. L. THOMPSON
Florida Citrus Experiment Station, Lake Alfred

Due to a complex of natural control factors, most of the insect and mite pests of citrus decrease to low population levels from mid-August to mid-September.

A minor portion of groves, however, will not conform to this pattern. If an infestation remains high during this period or starts to increase early in September, it is a warning that trouble will occur earlier in the fall and be greater than usual.

Rust mite will be the problem of greatest concern to most growers. Spotty heavy infestations of red scale will be common and in some groves a new generation of black scale will continue to contribute to sooty mold development.

Chaff scale is more prevalent than usual and will increase in September. Purple scale will build to heavy infestations in a few groves where excessive sulfur, especially lime-sulfur, has prevented effective control by parasites.

If extended rainy periods occur, the threat from insects and mites will be less. But infection by greasy spot, melanose, and brown rot will be accentuated.

The summer spray is applied in June or July to control scale insects and related pests, to prevent greasy spot on the summer growth, and to control citrus rust mite at least until September.

When this spray is thoroughly applied, it seldom fails to control scale insects. Rust mites however, may become a problem in August. In addition, control of greasy spot is likely to be poor where the summer spray was applied before the summer flush.

This year some groves will need black scale control in August. It will also be necessary to control purple scale or chaff scale where they are present on packing house fruit.

Control of Florida red scale should be considered in August. Too, groves with a history of brown rot may need copper.

If rust mites become numerous in August, a sulfur dust is economical and quick to apply, but a sulfur spray is preferred because it produces better clean-up and longer control. However, there are disadvantages to sulfur which should be considered before it is used:

Sulfur will control rust mite and Brevipalpus mites and may delay any fall increase in Texas citrus mite. On the other hand, it increases populations of purple scale, Florida red scale, and citrus red mite.

When scale populations are at extremely low levels, an increase caused by sulfur may be of little importance. But if scale populations are high or at threatening levels, sulfur should not be used without parathion or malathion unless a scalicide is to be used in the fall spray.

Chlorobenzilate at 0.5 pint or pound per 100 gallon or 0.75 pint or 1.5 pounds of Trithion or Ethion are good substitutes for sulfur in August sprays. These materials may be used with copper for greasy spot or brown rot and with parathion for scales.

Parathion or malathion may be applied alone in August where scale insects are the only problem. It is usually advisable, however, to include zineb or Chlorobenzilate to delay the fall build-up of rust mite.

Because copper increases rust mite as well as red spiders, copper compounds should not be applied without a miticide.

If the summer spray was properly timed to prevent greasy spot disease and neither mites nor scales nor brown rot are an August problem, the next spray should be delayed until needed for fall scale, greasy spot, or mite control.

The fall spray is primarily to control rust mite, citrus red mite, and Texas citrus mite; but scale control may occasionally be needed and some groves will need copper for greasy spot. Its aim should be to control mites until after bloom the following season unless a dormant application is planned.

With this in mind, it is advisable to delay the fall application as long as possible because the later the spray can be applied, the shorter the interval to postbloom and the greater the chance of obtaining the desired interval of control.

However, this spray should not be delayed until high populations have developed. A good time to apply the fall miticide is when about 20% of the foliage is infested with any of the injurious mites.

If scale or greasy spot control is required before time to spray for mites, however, the application should be timed for these other problems and include miticides.

Scale Control: Because severe infestations were not numerous this summer, very few groves should need a fall scalicide this year.

Nevertheless, Florida red scale as well as black scale are a problem in some groves. It will also be necessary to control chaff scale and purple scale where infestations of these scales have developed on fruit.

Both purple and chaff scales cause green spots on fruit. These spots will not degreen and are a grade-lowering factor. They are especially important on tangerines and tangelos as well as early varieties of oranges and grapefruit.

Parathion or malathion should be applied in August because later sprays will kill the scales but fail to prevent the injury. The same August timing is required for good control of black scale.

Infestations of black scale have been numerous, especially on grapefruit. Although they usually decline in August, control will be needed in some groves. Best results will be obtained with parathion applied in August when a large portion of the second generation will be in the young stages.

The maximum dosage of parathion or malathion should be applied to control Florida red scale when most of these insects are in the younger stages. This condition will occur in August in some groves but later in others. The best time to spray for red scale should be determined for each grove.

Preferred scalicides for August or later are 0.25 pound of technical parathion or 1 to 1.25 pounds of technical malathion per 100 gallon. Neither of these materials depresses soluble solids in the fruit juice or retards degreening. Nor are they likely to cause as much leaf drop as oil.

Oil sprays are not desirable later than July. Oil is most likely to depress soluble solids and retard degreening of fruit when applied from August to October. Furthermore, if oil was applied at any time during the summer, a second application made from August through October will have a greater adverse effect on solids and color than a single application.

Under no condition should tangerines be sprayed with oil after July. A later spray will prevent the development of good color.

Trees sprayed with oil in October or later are more susceptible to cold injury. And sometimes they do not have a normal amount of bloom the next spring.

In addition to scale control, if oil should be necessary for any reason such as removing sooty mold, use 0.5% oil plus either 0.15 pound of technical parathion or 0.75 pound of technical malathion per 100 gallon. The 0.5% oil will not retard degreening of fruit or cause as much leaf drop as 1.3%.

Because some oils are more highly refined than others does not mean they will not cause leaf-drop,

(Continued on Page 17)

SCALE AND MITE ABUNDANCE BY DISTRICTS AT MID-JULY 1961[1]

District	*Rust Mite*	*Citrus Red Mite*	*Texas Citrus Mite*	*Red Scale*	*Purple Scale*
West Coast	2.00*	2.00	1.89*	.64	1.00
Indian River	1.18*	1.43	1.08	1.29*	.79
Upper East Coast	1.17	1.33	1.50	1.50*	.83
Gainesville	1.40*	2.00*	1.60*	.40	.80
Orlando	.89	1.83	1.05	1.08*	1.19*
Brooksville	1.58*	1.58	1.33	.58	1.08
Ridge	1.17	2.00*	2.08*	1.58*	1.68*
Bartow	2.00*	1.71	1.86*	1.33*	1.33
State Average	1.35*	1.76	1.48	1.11*	1.19
Last Year	1.32	1.55	.89	.99	.75

Abundance is computed from the number and intensity of infestations in groves not recently sprayed. Figures marked * indicate threatening conditions.

[1]Written July 20, 1961. Reports of surveys by Harold Holtsberg, Fort Pierce; J. W. Davis, Tavares; K. G. Townsend, Tampa; T. B. Hallam, Avon Park; and L. B. Anderson, Jr., Lake Alfred.

BY FOLLOWING THE APPROACH of prescribed fertilizers per plant population, record tomato yields have been obtained at the Gulf Coast Experiment Station. Here Dr. C. M. Geraldson kneels to closely inspect prize specimens as Dr. E. L. Spencer, soils chemist in charge, looks on.

Fertilizing Vegetables for Maximum Yields

By DR. C. M. GERALDSON
Gulf Coast Experiment Station
Bradenton, Florida

Of all the factors affecting the production of vegetable crops in Florida, the field of plant nutrition has by far the greatest potential for increasing yields and improving quality.

Summaries by the USDA and the University of Florida show that 370,000 acres of vegetables were grown in Florida during the 1959-60 season. Acrewise, watermelons were most widely grown. This crop utilized 75,000 acres and had a value of about $10 million.

Valuewise, however, tomatoes led. Some 42,000 acres of tomatoes contributed about $45 million to a total vegetable crop value of about $159 million. Other vegetable crops having an annual value of $10 million or more include snapbeans, potatoes, celery, sweet corn, peppers, and cucumbers.

A significant trend, which is exemplified by watermelons and tomatoes, has occurred during the last two seasons. Compared to a 10-year average, yields per acre of both crops for the past two seasons have been substantially higher —amounting to approximately a 50% increase in tomatoes.

It is believed that a large part of this increase is due to advances in the field of nutrition as a result of research and its practical application.

Many Florida vegetables are grown in soils so sandy they are often considered to be virtually hydroponic cultures. Most of the nutrient requirements of such crops must be supplied from added fertilizers and supplements.

Besides nitrogen, potash and phosphorus, nutrients such as calcium, magnesium, sulphur, iron, boron, manganese, zinc, copper, and molybdenum are often found to be limiting factors in production. Therefore it is logical to use plant requirement as a basis for quantities of specific nutrients supplied in order to obtain a desired production.

Consider, for example, field corn. The addition of 160 pounds of nitrogen plus recommended amounts of other nutrients to 15,000 plants per acre should produce 100 bushels of corn. But by following the approach of prescribed fertilizers per plant population, record yields of over 300 bushels per acre have been produced.

Depending on the type of culture, 1,500 to 10,000 tomato plants are now being grown per acre in Florida. Based on the plant and fruit requirement, approximately one pound of 4-2-8 fertilizer plus secondary and minor elements would be needed for 10 pounds of fruit.

Cost of the nutrients to produce 10 pounds of tomatoes would be about two to three cents. Thus, the cost of increasing yields by supplying sufficient nutrients might almost be considered insignificant.

Let's say a grower wishes to produce 350 bushels (20,000 pounds) of tomatoes per acre. Basically, the nutrient required for this yield would be a ton of 4-2-8 plus secondaries and minors.

This would be considered a minimum because inefficient utilization and leaching would increase the requirements to perhaps 1.5 pounds per plant or 3,000 pounds per acre. It follows, then, that a minimum of 3 tons of 4-2-8 plus secondaries and minors would be required for a yield of 1,000 bushels per acre.

One point must be emphasized here: At lower levels, minor element requirements may often be supplied entirely from the soil and from impurities in the added fertilizers and supplements.

With increasing per-acre yields, however, the addition of secondaries (mainly calcium and magnesium) and minors must be made. This is necessary to keep all nutrients in balance in order to obtain the high yields and, at the same time, maintain good quality.

Soils also furnish some nitrogen and other nutrients (organic matter, cover crop, etc.) which become proportionately less of total requirements as yields per acre are increased.

The approach to maximum yields and quality is limited to the degree that an optimum nutrient concentration and balance can be maintained in the effective root zone during the growing season. A method has been developed to measure nutrient concentrations and balances in the soil solution.

In this method, the conductivity (indicator of soluble salts) of the saturation extract of the soil is used as in indicator of the nutrient concentration. Specific nutrients contained in this extract are determined and recorded as a proportionate part of the total salts, thus serving as an indication of nutrient balance.

With tomatoes, best yields and quality are most often associated with a nutrient concentration of 2,000 to 3,000 ppm (parts per million) total soluble salts. This is calculated at a field capacity moisture level. As an example of a balance factor, it has been determined that when the calcium is maintained at less than a 15% level (calcium/total soluble salts), a calcium deficiency is very likely to occur. This often results in development of blossom-end rot, small sized fruit, and poor carrying quality.

Leaching rains and plant utilization tend to reduce the nutrient concentration and may alter balances. Decay of soil organic matter (also added organics) and additions of fertilizers increase concentrations and may also alter balances.

Cultural practices designed to minimize such fluctuations are recommended. Some of these are listed below:

Nutrients should be added in smaller quantities and more frequently—perhaps weekly and as soon as possible after rains.

Quantity of nutrients applied should be geared to crop utilization as indicated by growth and by tests, as decribed above.

Organics should be avoided in that their decomposition is dependent on temperature and other factors not controlled by the grower.

Secondary and minor element nutrients should be supplied more frequently to avoid as

(Continued on Page 27)

Fertilizing Row Crops in Western Florida

By DR. CURTIS E. HUTTON
Vice-Director in Charge
West Florida Experiment Station
Jay, Florida

For better yields at a lower unit cost, follow the 'Don't Guess-Soil Test' approach

The soils in western Florida vary from deep sands to red and yellow sandy loams with a sandy clay sub-strata. Geographically, they belong to the middle province of the Coastal Plain topography and essentially are a product of sea water sediments from the out-wash plains of the Piedmont Plateau. They are composed primarily of coarse to fine sands and clay with very little silt.

Generally, these soils have a high content of iron and aluminum and a low phosphorus content with a corresponding high phosphorus-fixing capacity. There is a medium supply of potassium-bearing minerals, a low nitrogen content. And, for the most part, there is an ample supply of the minor elements.

Almost all of these soils are medium to strongly acid in reaction. There is little or no soil structure. Furthermore, due to the proportion of the sand and clay, the bulk density of the sandy clay sub-strata is sufficiently high to make root penetration into it quite difficult.

Seemingly, the above description would indicate that these are problem soils on which growth would be poor. This, however, is far from the actual findings of research and farm operators.

On the contrary, it is possible to remove most of the undesirable soil factors by (1) the use of limestone to increase the soil pH, (2) applying high rates of phosphorus to satisfy the phosphorus-fixing capacity and to provide a residual supply of phosphorus for good plant growth, (3) by plowing to depths up to nine inches to loosen the soil for good root penetration, and (4) by applying ample amounts of a balanced fertilizer material required by the particular crop to be grown.

Furthermore, it is entirely possible to build up the amount of residual fertilizer nutrients in the soil of western Florida by applying rates higher than those normally needed for a particular crop. When this is done, these residual elements will be available to crops in succeeding seasons.

Applying higher rates to build up the residual elements is a very desirable thing to do because it gives the soil and its microscopic animal life a chance to come to equilibrium. Equally important, it gives the grower a chance to improve his crop yields from year to year.

Let us examine, in a general way, exactly what we can do with an average soil. To do this, we must first know the elements of the soil.

Most of the soils, in the virgin state, will have: a pH of approximately 5.0 to 5.3, practically no available phosphorus, a medium supply of available potassium, a fairly low supply of calcium and magnesium, a very high amount of collodial aluminum, high quantities of iron and manganese, and ample quantities of the remaining minor elements.

By applying two tons of dolomitic limestone, we will increase the calcium and magnesium supply to ample amounts. We will also increase the pH to 5.8, which is approaching the range thought to be optimum for plant growth in these soils.

Or we could apply about 1,000 ponnds of 18% superphosphte. By so doing, we will build up the soil phosphorus, calcium, and sulphur to a level which will permit good plant growth.

For non-legume plants, we may then apply rates of 600 to 700 pounds of a commercial 4-12-12 fertilizer or equivalent and side dress with 60 pounds of elemental nitrogen. For legumes, if inoculation is assured, 300 to 400 pounds of 0-14-14 will suffice for fertilization.

In succeeding seasons, the limestone and superphosphate may be omitted, with only the complete fertilizer and nitrogen side or top dressing applied giving good crop yields each year (see accompanying table)

Ample rates of fertilizer pay well, we have found in experiments at the West Florida Station at Jay. But we have also found that it is impossible to continue to make higher and higher yields by applying more and more fertilizer.

There is no doubt that an ample amount of the proper fertilizer is very important. The average grower reaps a better return on money spent for fertilizer than for any other single item in his budget.

Nevertheless, here is an important question to consider: "How can I know the rate which will be the most economical?"

Every Florida grower has available to him—at no cost—a service by which he can have tests made on the soils of his various fields. From this service he can receive recommendations of fertilizer materials and amounts to be used for growing a maximum economic yield of each crop.

Personnel of the Extension Service and Experiment Stations alike will be very glad to help the grower by showing him the proper method of soil sampling. They will also discuss with him the proper fertilizer grades and amounts to be used on each of his fields.

We come now to the place where the grower must do something for himself—he must learn as much as possible about each of his soil areas and his fields on which he grows crops.

Soil testing is a valuable tool. But one year's records on a particular field is of less value to the grower than two years or 10 years of continuing soil test results.

Not only must the grower continue to take soil samples from his field at the same season of the year, he must also maintain records of the fertilizer he is applying, of the crop yields he has obtained, and of the type of season which existed during the year.

The grower, by keeping these records, can tell whether the amounts of available plant material in his soil are increasing or decreasing from year to year. With his fertilizer program, he will then know whether he is applying too much or too little of any particular nutrient and can remedy any undesirable condition. By doing this, *the grower can help himself more than can any one other person.*

GENERAL FERTILIZER RECOMMENDATIONS

Crop	*Pounds Per Acre At Planting*	*Pounds Per Acre As Side or Top Dressing*
Corn and Grain Sorghum	600 lbs. 4-12-12	200 lbs. Ammonium Nitrate
Cotton	700 lbs. 4-12-12	200 lbs. Ammonium Nitrate 100 lbs. Muriate of Potash
Peanuts*	300 lbs. 0-14-14	400-600 lbs. Gypsum on unlimed soil
Soybeans*	400 lbs. 0-14-14	

General Recommendations:
Apply 2 tons of limestone for any crop where lime has not been applied previously.
New Land: Broadcast and disk in 1,000 pounds of 18% superphosphate prior to using above recommendations.

*If these crops are grown in a well fertilized crop rotation, fertilizer may be omitted.

Plant breeders have provided high-yielding plants. Agricultural research has provided fertilizer ratios and amounts, cultural methods, etc. And the equipment manufacturers have provided ample power tools to make farm work faster and easier. All of these, however, cannot cause a farmer to make a maximum economic yield of a particular crop unless he is willing to learn about his soils and soil conditions *and* properly apply the information available to him.
to him.

From the foregoing, it is evident that I have said little about fertilization of row crops for western Florida soils. This is because specific

(Continued on Page 16)

Pasture Fertilization and MANAGEMENT

EFFECTS OF LIME AND MINOR ELEMENTS on white clover-Pensacola bahiagrass forage growing on Leon fine sand.*

By DR. WILLIAM G. BLUE
Associate Biochemist, Soils Department
Agricultural Experiment Station, Gainesville

Pasture fertilization is essential for improved forage plants and high quality cattle. For profitable results, however, a great deal of careful management must accompany pasture fertilization.

Economic pasture fertilization is heavily dependent on balanced mineral nutrition of plants to produce forage of good quality that is well distributed throughout the year. Poorly selected fertilizers may give forage yield increases of insufficient magnitude to pay cost of fertilizer and application. Or poorly timed applications may produce forage in such volume that it cannot be efficiently utilized.

Recent research at the University of Florida has been concentrated on determining rates and ratios of nutrients for optimum forage production under conditions which exist in the field and on management practices which enable balanced distribution of high qualiity forage.

Because fertilizer efficiency is dependent on it, the lime status of the soil should be checked – and adjusted, if necessary – before extensive expenditures are made for fertilizers. Lime supplies calcium, reduces soil acidity, reduces leaching of plant nutrients, and promotes the growth of desirable soil organisms. If dolomitic limestone is used, magnesium may be supplied also.

Legumes, particularly white clover, have proven to be the least expensive forage plants to grow from the standpoint of fertilizer costs. Land which is adaptable should have legumes included in the pasture. With respect to moisture, the large area of flatwoods soils is well adapted to white clover.

Fertilizer having a 1-1 ration of phosphate to potash has given good results for establishment of clover pasture. If soil reaction is maintained at approximately pH 6.0, phosphate accumulates in the soil and the ratio can be changed to 1-2 or even 1-3.

Nitrogen for direct application to clover has been of little benefit in Florida where soils have been limed properly. Single strength superphosphate should be used as the phosphate source since it contains sulfur and many of Florida's soils are deficient in this element, particularly for legumes.

Six hundred pounds of 0-12-12 per acre applied in October has given excellent results when all forage was grazed. An 0-10-20 formulation at 400 pounds per acre, which provides approximately the same amount of potash, has given equally good results in plot studies where the soil pH was maintained at the desired level.

In northern Florida, white clover has been very dependable on adapted soils. But, unless some provision is made for irrigation, it is somewhat less dependable in southern Florida because of poorer rainfall distribution during the winter and spring seasons.

White clover usually can be grown with grasses such as pangola, Coastal Bermuda, and the bahias. Where it is grown, white clover can be counted on to furnish large quantities of nitrogen for the grass during the summer.

Plot studies have clearly shown the need for lime and minor elements for the production of white clover. The value of white clover in terms of total protein production is illustrated by data in Table 1. Where lime was applied, the increased protein production from white clover was 1,790 pounds per acre or 286 pounds of nitrogen.

Normally, only 50% of the applied nitrogen is utilized by grasses. Hence, 572 pounds of fertilizer nitrogen would be needed in order to recover 286 pounds of nitrogen in the forage.

Assuming the relatively low price of 10 cents per pound for nitrogen, the cost of producing 1,790 pounds of protein in grass forage would be $57.20 plus the cost of applying the nitrogen in several applications.

In terms of cottonseed meal containing 41% protein, this quantity of protein would be worth more than $150. If lower digestibility of protein in forage compared to cottonseed meal is considered, the value of the protein is still very high relative to the cost of producing it.

The cost of 0-10-20 fertilizer to produce the above quantity of protein did not exceed $15 per acre annually in these experiments. Two tons of lime would be needed when the pasture is established and one additional ton at approximately three-year intervals based on results of soil analysis.

Summer legumes such as hairy indigo have been grown successfully with grasses. Fertilization similar to that for white clover is adequate. Indigo is a high quality forage from the standpoint of protein content and grass grown with the indigo will benefit substantially from the nitrogen released by the legume.

Balanced forage supply is necessary. But several management considerations must be kept in mind:

Nitrogen applied to grasses in proper balance with phosphate and potash has given excellent yields and protein increases. However, the practice of applying large quantities of nitrogen during the summer months for maximum yield is of somewhat questionable economic value with cow-calf operations because

(Continued on Page 14)

(* The two light-colored plots in the left foreground and the two in the the right background did not receive lime and have remained devoid of clover because of the soil acidity and low calcium supply. All other plots received two tons of lime at establishment in June 1952 and sufficient thereafter to maintain soil pH between 5.5 and 6.0.

The two light-colored plots in the right foreground, as well as some in the left and center background, also have poor clover growth and did not receive minor elements. All other plots, except those without lime, received boron and copper.

Significant reduction in clover growth, where minor elements were omitted, did not occur until five years after establishment. The extent of clover decline in the absence of minor elements is shown in the above photograph which was taken March 17, 1961, nine years after the original establishment.)

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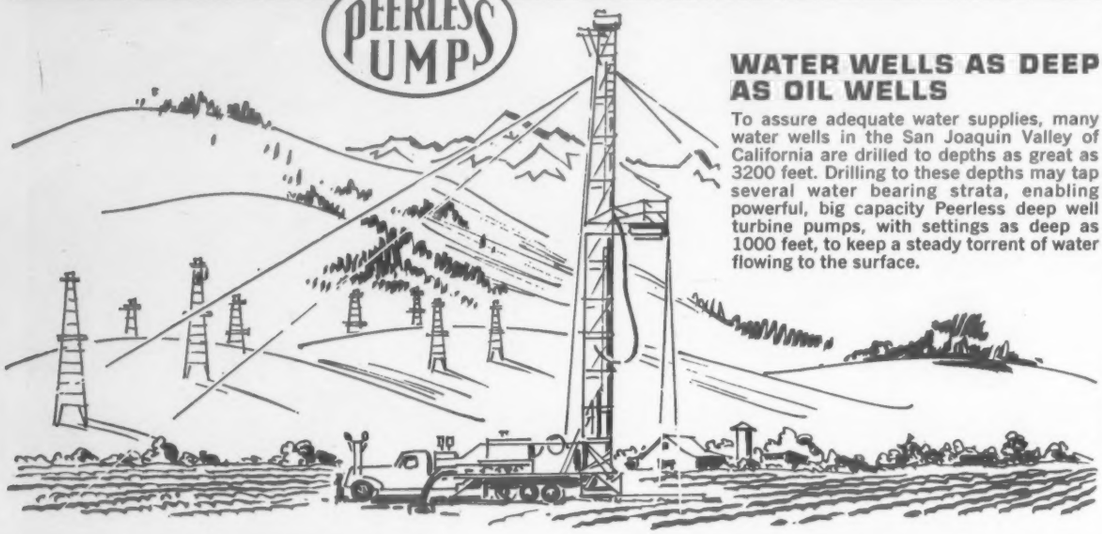

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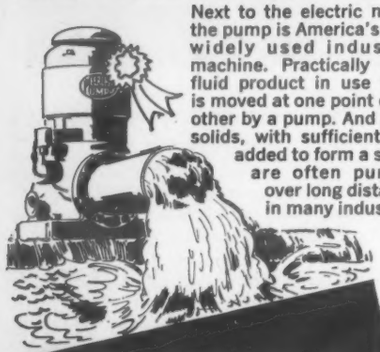

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Pasture Fertilization

(Continued from Page 13)

most ranchers are unable to utilize the extra forage produced under these conditions.

Fattening of young animals on grass is a special situation where high protein forage is necessary. In order to maintain a high protein level in grass, nitrogen must be applied at frequent intervals and in relatively large quantities. For maintenance of cows and calves, practices with the objective of providing a more balanced forage supply during the entire year are needed.

White clover plays an important part in producing more even distribution of high quality forage, especially during the winter and early spring. This is important when cows are seasonally bred during the spring[3].

Also, summer legumes provide high quality forage during the summer months. Fertilization of only a portion of the total available grass pasture with nitrogen during the summer to maintain adequate forage of acceptable quality is most desirable.

Supplemental winter forage may be produced by late summer fertilization of grasses[1,2]. This technique has been very successfully used in northern Florida and is being evaluated for southern parts of the state.

In northern Florida, it is recommended that nitrogen at about 50 to 100 pounds per acre be applied with phosphate and potash in a 2-1-1 ratio during the latter part of August.

Fall fertilization gives markedly reduced yields since there is a big reduction in the growth rate of the common pasture grasses. This is associated with the lower night temperatures which usually begin in the latter part of September.

The forage produced in the early fall can be left in the field for grazing during the winter. Or it can be harvested for hay in November, after rains have diminished.

If forage is to be left in the field for early grazing, the 50-pound per acre rate of nitrogen is suitable. One hundred pounds per acre will produce more forage of higher quality but severe forage lodging and waste have been observed under these conditions. Seventy-five pounds per acre would represent a satisfactory compromise.

Harvest can be delayed until after the first frost if necessary. However, this results in some reduction in feed value.

Results obtained show that ungrazed grass loses about 20 to 25% of its protein from November through January if left standing in the field. Loss of mineral elements is variable, with potassium being lost in large quantities.

Even after weathering, however,

TABLE 1
Effect of Lime on Yield and Total Protein Production by White Clover–Pensacola Bahiagrass Pasture, Beef Research Unit, Gainesville, Florida

Forage Plants	Lime	Fertilizer**	Yield oven-dry Forage	Total Protein in Forage
			tons/A	lbs/A
White Clover–Pensacola Bahiagrass	None	0-10-20	2.3	454
White Clover–Pensacola Bahiagrass	Limed*	0-10-20	7.9	2,244

*Lime was applied to maintain the soil pH (0-6" depth) above 5.5.
**0-10-20 applied to maintain oven-dry clover forage above 2% potash and grass forage above 1% potash.

mineral elements are probably present in sufficient concentration for animals. If forage is of high quality in November with respect to protein, it will retain sufficient quality through January to sustain cattle.

Low protein forage during the winter appears to result from initial low quality and from poor grazing management which permits cattle to trample forage and selectively consume the leafy material during the early part of the winter; low quality, stemmy material remains. A better procedure is to open smaller areas of the pasture as the cattle need it.

Harvesting of forage prevents losses by trampling, fouling, and weathering. And, if properly stored, it assures retention of the quality which was present at harvest time.

Secondary and minor element deficiencies are widespread in Florida. Fewer deficiencies have been noted for pastures than for other crops because, due to heavy major nutrient fertilization, less stress has been placed on their supplies than for vegetable crops and citrus.

Increased use of major nutrients on pastures in recent years and more extensive use of legumes have emphasized the importance of secondary and minor elements. As mentioned earlier, sulfur deficiency of clover would be widespread if it were not for the annual applica-

(Continued on Page 21)

TABLE 2
Effect of Fall Fertilization on Forage Production by Coastal Bermudagrass at the Suwannee Valley Station, Live Oak, Florida

Date of Fertilization*	Date of Harvest	Days of Growth	Oven-dry Forage Produced	Rate of Production	Protein in Forage	
			lbs/A	lbs/A/Day	%	lbs/A
August 23	October 28	66	3870	59	6.1	236
August 28	October 28	61	4140	68	6.4	265
September 2	October 28	56	3700	66	7.6	282
September 6	October 28	52	2490	48	9.4	234
September 12	October 28	46	2170	47	8.7	189
September 17	October 28	41	1500	37	11.3	170
September 24	October 28	34	500	15	14.8	74
October 1	October 28	28	70	3	8.2	5

*Nitrogen applied at 75 lbs/A and 0-10-20 at 400 lbs/A on dates shown.

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Citrus Fertilization *(Continued from Page 9)*

and other programs for the high-volume producer of processing fruit.

Citrus is also grown on a reasonably wide variety of soils. In fact, one of the most important trends in the industry today is the planting of new groves on lands considered unsuitable for citrus as recently as five years ago.

These soils differ from high pineland soils in their physical as well as their fertility characteristics. They pose problems — and offer opportunities — for the research worker in soil fertility to make more specific and detailed recommendations for individual sites.

Just what form may these improved recommendations take? Very likely, greater reliance will be placed on analytical data as a basis for making fertilizer recommendations than has been possible in the past.

With a clearer concept of desirable levels in leaves and in soils, and possibly in fruits, chemical analyses will make possible more specific recommendations for some elements on individual groves. This will lead to more effective use of fertilizers. And ultimately it will reduce costs.

Forty years ago, source of materials was considered of tremendous importance. Research has justified reduction in this emphasis.

Such understanding will lead eventually to simplification of fertilizer application, materials, and methods. Higher analysis fertilizers seem certain of wider usage in Florida, due to their economic advantages.

Certainly, tremendous strides forward have been taken in the study of soil fertility. Those who have studied soil fertility problems most thoroughly are among those who most clearly realize the opportunities for improvement in fertilizer practice.

Basic and applied research will continue to make possible many constructive improvements in fertilizer practice for Florida citrus.

* * *

Row Crops

(Continued from Page 12)

recommendations must be based upon individual soil conditions.

Without the value of soil tests, I can make only very general recommendations. On the other hand, I can, as the accompanying table indicates, provide general ratios and quantities which will be ample for good crop yields.

Yet it certainly is very desirable for each individual grower to cut his costs of production. In order to do this on a sound basis, I think it is absolutely mandatory that he begin a soil test-soil inventory system on his farm so that he can increase his fertilizer efficiency.

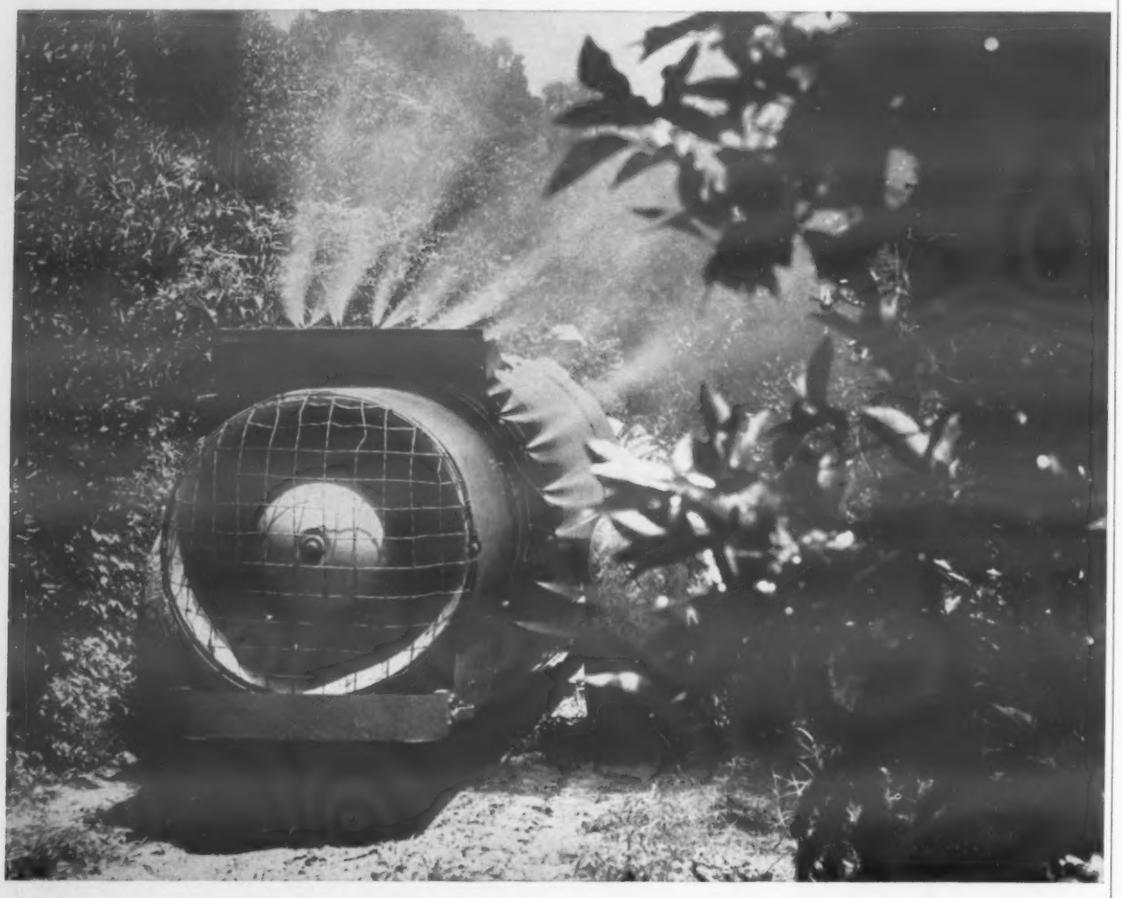
In the accompanying table, I am listing legume and non-legume row crops with general recommended rates of fertilizer materials for old and new soils. The rates *are not based* on soil test results.

These general rates are sufficient to produce better than average yields . . . providing climatic conditions are favorable, proper varieties are used, the proper cultural practices are followed, etc.

However, you may be able to grow yields at a lower unit cost if you follow a more scientific *"DON'T GUESS–SOIL TEST"* approach.

* * *

"Your guess is a good as mine. But with the egg situation what it is, any place is better than back there."



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A selective miticide, TEDION controls citrus mites in all stages of development. It has long-lasting action . . . may control certain mites for an entire season. Use one application per season on oranges, one application per year on lemons. TEDION controls "resistant" mites, has a wide safety factor on foliage and plants, and low toxicity to warm-blooded animals. Get Stauffer brand TEDION 25% Wettable Powder. Stauffer Chemical Company, P. O. Box 5388, Tampa, Florida.

Stauffer CHEMICALS

Citrus Pest Control *(Continued from Page 10)*

depress solids, or retard degreening as much as the less highly refined oil emulsions.

Greasy Spot Control: In many groves, the summer flush developed after application of the summer spray and is unprotected from greasy spot.

Where greasy spot has not been a severe problem, this may not be serious. In groves with a history of greasy spot, however, it may be advisable to include copper in the fall application.

Use 0.7 pound of 53% tribasic copper sulfate per 100 gallon or an equivalent amount of another neutral copper such as copper oxide.

Fall copper sprays should be delayed to cover the fall flush as well as the summer flush. But if mites become a problem before the fall flush is mature, the fall spray should be timed for mite control.

Brown Rot Control: Groves that have a consistent history of brown rot should be sprayed in mid-August with 0.7 pound of 53% tribasic copper sulfate per 100 gallon or an equivalent amount of another copper compound.

Spraying, however, may be delayed until symptoms first appear in the case of groves where brown rot has been an occasional problem.

In either case, control may be obtained by spraying only the lower six feet of the tree.

Mite Control: The best material for control of red spiders in September, October, and early November is 0.5 pound of Tedion 25W per 100 gallon.

Providing it is used properly, Tedion offers the best chance of controlling red spiders until after bloom next spring. This material has given the longest control of citrus red mite and Texas citrus mite of any of the miticides.

However, Tedion is a slow killer and should not be used after high populations of red spiders have developed unless supplemented with a quick killer such as Chlorobenzilate or parathion.

Tedion is of no value against rust mite and must be supplemented with a rust mite miticide. Chlorobenzilate — at the dosage of 0.5 pound or 0.5 pint per 100 gallon of spray — is preferred for this purpose because it will give a good clean-up and lasting control of rust mite, will give a good clean-up of red spiders, and may be used with copper.

Sulfur or a mixture of sulfur and zineb may also be used with Tedion. However, they are of no aid to red spider control and zineb cannot be used with copper.

Tedion should not be used on the same trees more than once each year because repeated use may result in resistant mites.

Although Tedion and a rust mite miticide can be used throughout the fall and winter months, after mid-November it is usually cheaper to use a combination miticide. Trithion or Ethion are preferable to Kelthane or Delnav from mid-November through December, but all four are likely to control rust mite and red spiders from January until postbloom.

Consult the 1961 'Better Fruit Program' for further details concerning dosage, compatibility of mixture, precautions, and regulations covering the use of pesticides.

' ' '

"We": What editors call themselves so the person who doesn't like the article will think there are too many for him to lick.

Coming . . .

"Australians Are Growing Citrus on Sand Ridges"

"Placement of Fertilizer for Strawberries under Plastic"

. . . Next Month

"How **FMC** Tropic Breeze wind machines help young citrus trees grow to maturity"

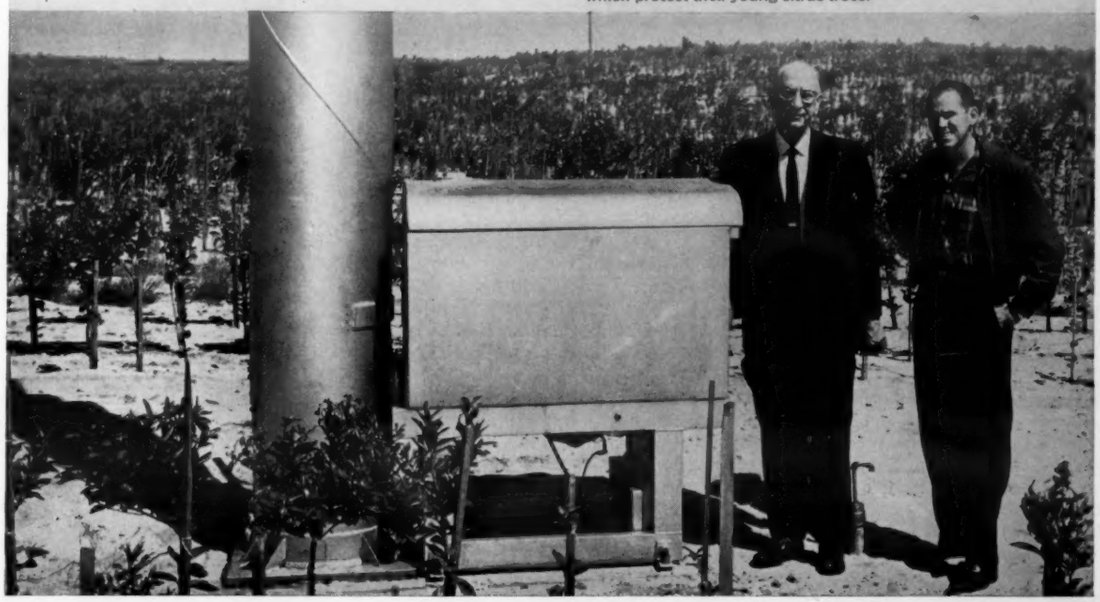
TO PROTECT THEIR YOUNG CITRUS TREES FROM THE RAVAGES OF FROST DAMAGE,

Lake Garfield Nurseries Company has been experimenting with wind machines since 1950. Since that time they have purchased 16 machines. In the words of the nursery's vice-president, J. F. Alexander, "These machines have been most successful during the long periods of calm which we often have on cold nights. On such nights we have found they do an excellent job in protecting the young citrus trees."

To see how FMC TROPIC BREEZE wind machines can be applied to your nursery or grove, contact your FMC representative for an expert grove analysis—at no obligation.

FMC TROPIC BREEZE wind machines do provide positive protection against frost damage, and they do it economically and quickly. Successful, dependable operation in more than 5000 installations has proved it. Protect your citrus from frost the modern way, the practical way... the FMC way. Send in the coupon today for full information.

Mr. J. F. ALEXANDER (at left) and LELAND BRYAN, both of Lake Garfield Nurseries Co., stand beside one of the FMC wind machines which protect their young citrus trees.



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A Return to Elegance

Adapted from the Gaslight era is the textured look in today's wall papers; the velvets and brocades in upholstery. The grosgrain stripe in this paper has a real fabric look. The printed velvet upholstery on the simply designed chairs gives richness. And the hanging lantern is a direct steal from the Gay Nineties.

Living in Florida

By BARBARA CLENDINEN

For years, Southern cooking has been derided as a greater myth than the Loch Ness monster. And not a whit more beguiling.

Critics, like the late Broadway-Hollywoodite Paul Douglas and our own North Carolina boy Robert Ruark, say the fare at roadside restaurants is worse in the South than anywhere short of Uzbekistan. And that's in Central Asia where clabbered goat's milk is seldom sold under five days old.

They pile faggots on the fire declaring that only in New Orleans can a man of sensibility pleasure his palate. Then they race back to New York where a turkey sandwich that's pale cousin to our Thanksgiving late-night feast costs almost as much as the bird.

All these unkind cuts are directed at our commercial cuisine. Even the most sated sampler (like Gourmet magazine's Clementine Paddleford) strikes her forehead to the ground and pants appreciatively when it comes to Real Home Cooking.

But there's no such thing on the road, they shriek. And the most thoughtful thing a man can do for his digestion is to get out of the South as fast as possible.

Well, we're just back from a quick swing through the region maligned. We sped-and-fed through Georgia, South Carolina, North Carolina, Virginia, and Tennessee. And paused a moment in Alabama to collect a jar of apply jell put up that morning by a 95-year-old aunt who's a loss to Crosse and Blackwell.

I will say right off that we ate an expensive steak as excessively charcoaled in Nashville as we've had the sorrow of buying in New York and Chicago. I will concede that breakfast spots which promised homemade hot biscuits took them right out of a package. And seldom was country ham really that. Edible, yes. Peppered and smoked by family recipes—no.

Further I will admit that we ate at one highly advertised spot near Lynchburg, Virginia, where the food was so astonishingly bad I almost forgave Paul Douglas. Were it not for excessive mailing costs, I would feel it my patriotic duty to warn all travelers in a 50-mile radius to drive swiftly and relentlessly by.

But our breakfasts, though biscuitless, were well prepared and the coffee was excellent. We found perfect Maine lobster in an arid spot in South Carolina. And in Tennessee we had slow-cooked yellow hominy grits so creamy they must have cooked all night.

These small victories might have sent us home joyless, however, were it not for two beautiful surprises—a pair of little-known hotels where the food was so good I'm not sure I want Ruark to have the pleasure of it.

One is a rambling white wooden building, circa 1910, which overlooks Natural Bridge, Virginia. There they spread a Sunday night buffet that would warm a Southern planter's heart. Peppery deviled crab, sliced turkey and rare roast beef, fried chicken so beautifully crisp without, so juicily tender within I could have wept with joy, honest-to-goodness Smithfield ham, mellow yet sharp with the distinctive flavor that only a fine ham has, shrimp salad. . .

Listed here are but a few of the goodies guests piled on their plates. Plus any number of congealed, vegetable, potato and macaroni salads, all sorts of hot breads, and an assortment of desserts that were death to a dieter's pledge. Can't remember how long since we had cream puffs like that.

Everyone went back for seconds; many made the circuit twice. All this beautifully prepared, ambrosial food cost $2.75, no matter how many times you circled the table.

The other tender memory is the Martha Washington Inn in Abingdon, that enchanting old town that houses the famed Barter Theater. Built in 1834 as an unusually fine private mansion, the inn became a girls' school a quarter century later and was still operating as Martha Washington College until a couple of decades ago.

Now it's a motor inn in the splendid tradition of the Old South, with gardens, antiques, handsome chandeliers, fires leaping under beautiful old mantels, four-poster beds, handsome dried bouquets, and FOOD that makes the heart sing.

We had spoonbread so delectable we consumed ours and that of our neighbor's, and banana fritters that were superlative with a special carmel sauce. We had perfectly cooked chicken, fluffy biscuits with crisp crusts, aged ham, and vegetables prepared with love and understanding. And then we had some more spoonbread.

Let no one, then, say Southern cooking is dead. In Williamsburg last autumn we lunched on Rockingham county chicken with curls of ham and tender fresh asparagus, preceded by a dish of fresh crabmeat in hot butter and followed by greengage plum ice cream frozen in giant red apples. *That* was a meal to remember on windy, dark nights!

I can reach but one conclusion: Our critics stop at the wrong places.

' ' '

Careful Planning Leads to Contented Retirement

By LORA A. KISER

One of the happiest men on the west coast of Florida is a still-vigorous former executive who fills his leisure years with the excitement of rose culture. Another is a highly effective senior citizen who retired to Florida and immediately became involved with most of the good works in his new community.

There are thousands of men and women like these two well-adjusted two, turning happily from long work habits to useful retirement.

But on the other side of the increasingly broad picture are scores of frustrated, irritable elderly people who cannot or will not adjust to a new phase in their lives. These discontents miss the timeclock of their former existence. They sigh for the past and thus miss the present's golden hours!

Learning to switch horses in the midstream of lif eis an ability that must be mastered for we're living longer these days. Retirement faces us all, whether from office, store, or the happy treadmill of raising a family.

A main step in preparing for leisure is to broaden one's interests. The man whose nose has been to the grindstone for years should lift his head and inspect gardening, fishing, chess, reading, stamp collecting, and woodwork. One of these is bound to tug at his interest. Colleges and

(Continued on Page 20)

For Labor Day, Fashion

A Floral Firecracker

Labor Day's right for a cook-out, with a colorful table arrangement and a menu that taxes no one.

(By No One, we mean You, dear reader—who else?)

Mix a potato salad in the cool of the morning, slyly using the packaged arts. They include now, you know, a potato salad mix complete with seasoning. Gone is the chore of peeling and cutting. Quick as a whisper, cook the ready cubed potatoes with their aromatic condiments, let them cool, then mix with the lightest of hands and the dressing ingredients. If you add a couple of hardboiled eggs and some paprika, who's to know it's not grandma's best recipe?

Shape your hamburgers early, too, and refrigerate them on waxpaper-covered cookie sheets. Crispen carrot and celery sticks, be sure you've the season's reddest, ripest watermelon on ice and the party's on.

All but the flowers. And they're so much fun, you can't count that a chore. Set off verbal fireworks with the gay centerpiece pictured here. It's a giant, red firecracker, filled with geraniums or red zinnias, with ivy or geranium leaves softening the line. Make it with two empty tin cans of the same diameter, placing one on top of the other and securing with masking tape or floral clay. Cover both cans with a sheet of red paper and fill the top can with saturated oasis or other foam material. Insert brilliant red flowers, then add a lighted, red candle for atmosphere.

It's bound to be a gay party.

YARD & GARDEN

By Marguerite Schwaen

Poinsettias will need extra attention this month to provide brilliant bloom when they come into flower when winter comes. They normally require cutting back three times a year; first in March, after the flowers have faded and the plants have become straggly; again in early summer, and the final cutting back in August or not later than the first of September.

While just how much to cut back is sometimes debated, a plant should never be cut back to a single stem. A good rule of thumb in pruning any shrub is to cut back one-third. In the poinsettia, the end result in trimming resembles a low hat rack, with each hanger approximately eight inches long.

In recent years, this belle of the Christmas season has been missing from many gardens due to an increased infestation of insects and fungus diseases. Two fungus diseases have attacked poinsettias and, only recently, a tiny mite has become troublesome. However, these pests can be controlled by a monthly spray program of neutral copper with kelthan. The neutral copper controls fungus; kelthane kills the mites.

The fungus diseases attack the leaves and stems of poinsettias in the form of a scabby growth. Unless controlled, this results in dead streaks and spots on leaves and stems. The plant finally is so weakened that it dies.

Mites so small they can be seen only with a 10-power magnifier gather in colonies on the underside of leaves and feed by puncturing the leaf surface and sucking juice from this tissue. Eventually, the leaves turn a light rusty color. The numerous pin-point holes left by the mites' feeding are visible when a leaf is held up to the light.

Poinsettias can tolerate drought much more successfully than long rainy periods and overwatering. During extremely dry spells, a good soaking every two weeks is adequate although at times their leaves may wilt in the sun. This wilting, however, is not nearly as troublesome as too much water.

Fungus is more difficult to control. Nevertheless, both fungus and mites can be successfully dealt with if the gardener is sufficiently interested to stick to the monthly spray schedule.

Nematodes occasionally cause poinsettias trouble. When plants stay yellow and refuse to grow although there's no indication of disease, it's probably nematodes. A solution of Nemagon or VC-13 may be applied to the soil if directions are followed explicitly. After the treatment, the plants should show new growth and vigor in time for the holiday bloom.

Plants are now available at many nurseries and it isn't too late to put a few specimens in the flower border for flowering this year. When the big fireballs, triple fireballs, pinks and whites come into bloom, they add a lot of excitement to the scene.

August is limited to a very few annuals but seeds of the following may be planted this month: Gallardia, annual hollyhock, sunflowers, portulaca, verbena, and zinnia.

BEST RECIPE of THE MONTH

A tandem of teen-age tempters won this month's $5 first prize for Mrs. James Hastings, St. Petersburg. Neither takes more than minutes to prepare; each is delectable. Particularly interesting is an uncooked candy which involves no sugar, chocolate, or butter — a boon to teen-age complexions.

Clip these for your in-a-hurry days. They'll satisfy the hungriest high-schooler.

No-Cook Candy

1/3 cup honey
1/3 cup peanut butter
1/2 cup non-fat dry milk

Mix ingredients in the order given. Form in roll, chill well, then slice *or* form into small balls.

Chocolate Fudge Pudding Cake

1 package white or yellow cake mix
1 cup brown sugar
4 tablespoons cocoa
¼ cup chopped nuts
1¾ cups boiling water.

Prepare cake mix by package directions and pour into 13x9x2" pan or dish. Sprinkle sugar, cocoa, and nuts over top; pour boiling water over, *do not* stir.

Bake 40 minutes at 350°. Cake will rise to the top; chocolate sauce will be on the bottom.

• • •

An unusual casserole which combines cubed ham with baked beans won second prize for Mrs. H. H. Tutwiler, Lakeland. The secret of the flavor success is a two-hour marinade in a cola beverage.

(Editor's note: Years ago we gasped at a recipe which used cola to marinate a whole ham. It proved to be delicious.)

Cola Ham 'n' Beans

1½ cups cubed ham
1 cup cola bottled beverage
2 1-pound cans baked beans
2 tablespoons brown sugar
1 medium onion, minced

Soak cubed ham in cola for 2 hours. Drain, reserving ½ cup of the liquid. Combine ham, beans, brown sugar, onion, and liquid; pour into 2-quart casserole.

Bake at 350° for 30 to 40 minutes. Serves 6.

• • •

Peanut butter stars again in the chewy-crisp cookies which won honorable mention for Mrs. Maxine Engel. This recipe makes 5 dozen, which disappear like snowflakes in Mrs. Engel's Hialeah home.

Peanut Butter Joys

¾ cup soft shortening
1 cup brown sugar
½ cup granulated sugar
1 egg

(Continued on Page 20)

SEWING CORNER

Freedom Story!

Feel free to step, walk, and work in these action-loving culottes. Sew-easy in poplin, pique or denim, they combine the comfort of pants with the flattery of a shirtdress.

By adding sleeves, you can wear these culottes in late autumn.

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Best Recipes

(Continued from Page 19)

¼ cup water
½ cup peanut butter
1 cup sifted flour
1 teaspoon salt
½ teaspoon soda
3 cups uncooked oats
1 teaspoon vanilla
1 teaspoon almond extract

Mix shortening well with the sugars. Add egg, water, and peanut butter; beat well.

Sift flour, salt, and soda together; add, mixing well. Add oats and flavorings.

Drop by teaspoon onto well-greased cookie sheets. Bake at 350° 12 to 15 minutes.

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RECIPES, PLEASE!

Right now, it makes us hot to even think of stirring around. But October will be here before you know it, and that means football throughout the land.

Friday nights will see high school stadiums crowded; Saturday mornings will dawn over highways clogged with cars bound for the college games. That, in turn, means after-the-game snacks and picnic lunches.

What do you take when you go to Gainesville for the big game? Or is your speciality turning back the rugs for the high-schoolers and letting them dance – and eat – after the goalposts are down?

Tell us about it for our October issue; we'll pay $5 for first prize. Mail your pet recipe by August 28 to:

Best Recipes Contest
FLORIDA GROWER & RANCHER
P. O. Box 2350
Tampa, Florida

Second prize is $2. Honorable mention wins a three-year subscription for yourself or a friend.

SHORT CUTS

(We pay $1 for each Short Cut published.)

Remove the paper disc from inside the cap of a liquid detergent plastic bottle. Wash bottle thoroughly. Hold a small darning needle with tweezers or small pliers. Heat point in flame until it turns red, then burn four or five small holes in the cap. Fill bottle with water, screw on cap and you have a handy clothes sprinkler. *Mrs. H. Y., Port Richey, Fla.*

• • •

To dampen clothes quickly in summertime, turn garden hose to a fine mist spray and sprinkle clothes while they're still on the line. Then take them down, roll them and place in basket, ready to iron. *Mrs. S. C., E. Bradenton, Fla.*

• • •

When linoleum is worn or torn, it takes on new life if cellophane tape is used to cover the spot, then is shellacked for strength. *Mrs. S. H. P., Manchester, Ga.*

• • •

A strong solution of epsom salts protects children's skin from mosquito bites. Use three parts salts to one part water. Sponge solution on exposed parts of the body. *Mrs. C. S., N. Miami, Fla.*

Turkeys will continue to head the plentiful foods list during August, according to the Food Distribution Division of the USDA's Agricultural Marketing Service.

Also on the August plentiful foods list will be peaches, various summer vegetables, shrimp, and plums.

Florida's Peanut Acreage Has Skidded Downward Since 1939

WITHIN the past two decades, the annual acreage of peanuts grown in Florida has skidded downward some 76.5%.

So show figures released by J. R. Henderson, agronomist with the Florida Agricultural Extension Service. Henderson's report also cited acreages of other crops grown for feed in Florida.

The 20-year high was 480,000 acres of peanuts, produced in 1939. The low of about 113,000 acres occurred in 1959.

Henderson added that the annual acreage of peanuts hogged-off has declined gradually, from more than 200,000 acres prior to 1948 to less than 100,000 acres since 1952. The figure for 1960 was only 65,000 acres.

Crops grown for feed in Florida also include cereal grains, annual forage crops, and permanent pastures.

The numbers of acres of corn harvested annually for grain since 1946 ranged from a high of 649,000 acres in 1946 to a low of 557,000 acres in 1957. Last year, 578,000 acres were harvested.

Grain sorghum has been grown to a limited extent in all sections of Florida. It has never become an important crop, though.

Oats and wheat are used primarily as grazing crops. A part of the acreage of each, however, is harvested for grain.

Wheat is a relatively new crop in Florida. About 15,000 acres were grown in 1960, with some 5,000 of these being harvested for grain.

Annual forage crops grown in Florida include many grasses and legumes, grown separately or in various combinations.

In recent years, forage crop acreage has increased considerably. This rise has been accompanied by increases in the use of small grain-winter legume combinations, pearl-millet as green chopped forage, and in the harvesting of corn, sorghum, and pearlmillet for silage.

The acreage of permanent pastures is continuing to increase, according to Henderson. This rise, however, is at a much slower rate than in the late 1940's and the early 1950's.

During the last few years, there has been a trend toward heavier fertilization of pastures and utilization of surplus forage as grass silage.

• • •

Contented Retirement

(Continued from Page 18)

secondary schools offer dozens of intriguing courses, welfare agencies cry out for helping hands, and the do-it-yourself trend of Americana provides many avenues to happy use of free time.

Contented retirement also requires advance financial planning. A good way to decide how much income you'll need is to analyze present spending, then estimate what expenses will go down and what may go up in the future.

Taxes will be lower, not only because income will be smaller but because some retirement income is tax free. Income tax exemption doubles at 65. For a husband and wife filing a joint return, this means a $2,400 exemption.

Business expenses, such as transportation, will be eliminated. Paid-up life insurance and a retired house mortgage greatly reduce expenses. Buying a smaller, new house may reduce real estate taxes—and will undoubtedly lower maintenance cost.

For many, the necessity to accumulate savings ceases with retirement. Home repairs and yard chores become do-it-yourself projects, thus reducing service costs. On the other hand, the cost of medical care will be higher. So if poor health is a factor, the need for paid help may increase.

With age, less food and simpler food is needed. Clothing is apt to be more informal, less costly, and longer-wearing. Funds for recreation and travel can be nominal. However, if income is adequate, many people may wish to do the traveling they lacked time for before.

Retirement villages have sprung up all over Florida. These offer companionship, reduced living costs, and a continued community feeling.

Careful planning, self-analysis, and the ability to walk in a new path will make those extra decades happy for us all.

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Pasture Fertilization *(Continued from Page 15)*

tion of this element through superphosphate or sulfate of potash.

Magnesium recently has been shown to be deficient for small grains and other forage crops on the light ridge sandy soils. Dolomitic lime is recommended for these soils to correct pH and to supply calcium and magnesium.

Boron, copper, zinc, and manganese have been noted to improve clover production. Too, copper has been beneficial for grass.

Not all soils need minor elements. But if they are deficient, response to major elements may be markedly reduced.

Deficiencies are most likely to occur on light-textured, well-drained soils. The Extension Service recommendation for minor elements is as follows:

"If local experience indicates the need for minor elements, each that is deficient may be included in the fertilizer at the following rates: CuO, 1%; MnO, 1%; ZnO, 0.5%; and B_2O_3, 0.5%."

Minor element frits, a group of new materials, has proved to be very effective in supplying minor elements[4]. The frits are mixtures of minor element minerals and silica which have been fused by heat and ground into fine particles.

Research efforts have produced materials with relatively low solubilities but which supply nutrients at an adequate rate for plants, thus preventing luxury consumption and possible toxicity followed by deficiency, as may happen with soluble salts of the minor elements.

Data thus far have shown that frits will need re-application about every third or fourth year.

In summary, major points to remember for a good pasture fertilization and management program include:

Especially where cows and calves are produced, legumes should be grown in all cases where soil and climatic conditions permit. High quality legume forage can be produced at relatively low fertilizer cost and the accompanying grasses benefit substantially from nitrogen released by the legumes.

Lime should be applied to all pastures as needed. Soil pH determinations according to recommended procedures will help in determining when lime should be applied.

The soil pH should be maintained at approximately 5.5 for grass pastures and 6.0 where white clover is included. Summer legumes such as hairy indigo will grow satisfactorily at pH 5.5.

Fertilizer having an 0-1-2 ratio of N-P_2O_5-K_2O is satisfactory for maintenance of pastures with legumes. Four to six hundred pounds of 0-10-20 per acre per year has usually given good results.

Nitrogen for grass pastures should be applied during the summer only to supply adequate forage of the quality necessary for the particular cattle operation. Fall-applied nitrogen on permanent grass pastures, especially in northern Florida, is extremely important in providing quality forage during the winter months.

Awareness of possible secondary and minor element deficiencies is important. Minor element deficiencies can be eliminated by use of salts and oxides of the elements or the newer frits. These can be included in the fertilizers containing the major elements.

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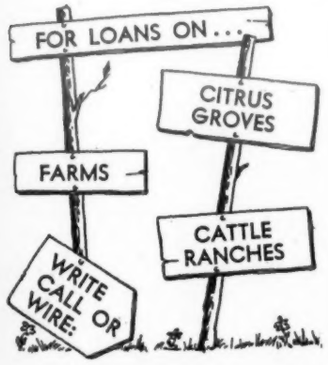
Race horse: An animal that takes several thousand people for a ride at the same time.



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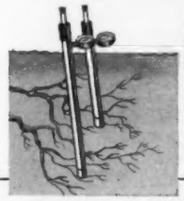

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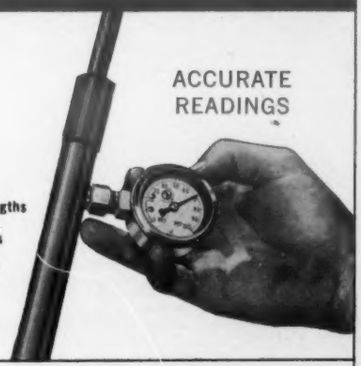

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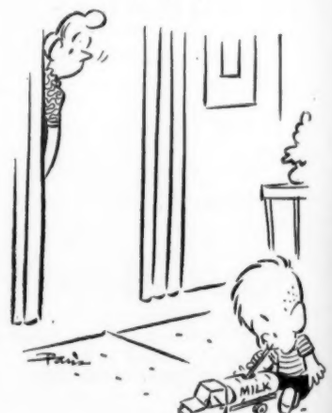
Florida's Beef Numbers

Florida ranks 18th in the nation in beef cattle production, latest figures compiled by the State Chamber of Commerce show.

The total number of beef cattle in the state is 1,252,000. This is a 2% drop from the 1960 figure.



Stand-by Power Insures Continuous Dairy Operation

By A. M. PETTIS
Associate Agricultural Engineer
Florida Agricultural Extension Service

Emergency standby power is a profitable investment for Florida dairymen, especially during the hurricane season.

A standby power plant should be regarded as an insurance policy against costly outages. Even if it is never called upon in an emergency, the investment is worthwhile.

One storm producing outages — of one, two, three, or more days — may cost the dairyman, in injury to animals and in lost product, far more than the cost of emergency standby power. Hurricane Donna last year convinced many Florida dairymen of this fact!

We strongly feel that a dairyman cannot afford to guess or to hope that the power will remain on. He must take steps **before the storm strikes** to insure continuous power for milking, for watering animals, for cooling milk, and in many cases for feeding animals.

A good manager could operate the dairy satisfactorily with a standby power unit smaller than his total electric load. For example, the water pump and the feed grinder might be operated while the milk cooler is idle.

With several motors to be operated at the same time, always start the largest motor at first. Then, in succession, the next largest, etc.

Electric motors draw three to five times as much current when starting as when running. Consequently, the standby generator probably could not pull the load if all motors were started at once.

Generally, an standby electric generator will be much more satisfactory than using separate gasoline engines with various power requirements. For one thing, there will be expense and trouble involved in maintaining several small gasoline engines so they will run when needed.

Secondly, more and more submersible and centrifugal jet water pumps are being installed — and electric power is the only way to operate them. Some milkers have pulsators on the line operated by small electric motors and, of course, these could not be replaced with gasoline power.

For the smaller dairy, tractor-powered generators are a possibility. Usually the farm tractor is kept in good operating condition and it would be ready to go when needed.

If the power requirements are not too large, a tractor-operated generator would cost considerably less than a complete diesel or gasoline-driven generator unit.

Normal maintenance of a gasoline or diesel engine is, of course, required after the dairyman obtains a standby unit.

Where a standby generator is available, use it for a complete milking cycle — i.e., milking, cooling, etc. — at least once every two months. Using the generator warms the windings and helps keep them dried out.

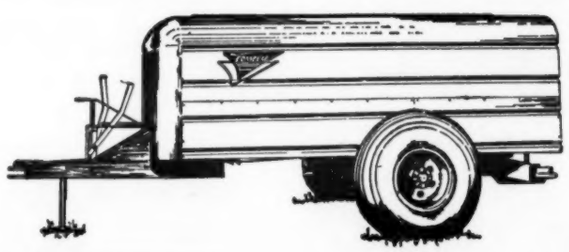
Keep a 60W or 100W light bulb burning as close to the generator coils as possible and the heat will help solve the moisture problem. Too, the generator should be housed and kept out of the weather.

If nothing is done to dry the generator coils, don't be surprised when you try to use the generator only to find moisture has caused a short in the windings and it will not produce electric current.

Once you decide to obtain a standby unit, discuss this with your power supplier. The installation is extremely important.

Probably all power suppliers

(Continued on Page 32)



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Natural Organic Nitrogen Ups Early Watermelon Yields

By DR. PAUL H. EVERETT
South Florida Field Laboratory
Immokalee, Florida

Even though it costs more, fertilizer containing natural organic nitrogen produces higher yields of watermelons grown under seep irrigation.

Nitrogen is the most expensive element in commercial fertilizers. Moreover, sources of natural organic nitrogen are more expensive than those of inorganic nitrogen.

Crops in many areas have produced just as well when fertilized with inorganic nitrogen as with the more expensive organic nitrogen. For this reason, the trend is to reduce or entirely eliminate organic nitrogen from mixed fertilizers.

One notable exception to this trend is watermelons grown on sandy soil with open-ditch seepage type irrigation.

Nitrogen source experiments conducted at the South Florida Field Laboratory during 1959 and 1960 have shown a definite increase in watermelon yields when part of the fertilizer nitrogen was derived from a natural organic material.

In these tests, watermelon seed were planted at three-foot intervals on rows 10 feet apart. They were fertilized with a complete fertilizer containing either ammonium sulfate, ammonium nitrate, sodium nitrate, or 30% natural organic nitrogen plus 70% inorganic nitrogen.

Melons were harvested four times each season. At each harvest, the melons were counted, weighed, and graded either as marketable or cull. The yields reported here refer only to marketable melons.

Results show that when 30% of the fertilizer nitrogen was derived from organics, the yield per acre was increased by 9 tons in 1959 and by 20 tons in 1960 over ammonium sulfate which (Table 1) gave the second highest yields.

Both years, the poorest yields came from plants fertilized with sodium nitrate as the only source of nitrogen. Yields from plants receiving ammonium nitrate were intermediate between the yields obtained from ammonium sulfate and sodium nitrate.

The response of watermelons to organic nitrogen was not only evident in total yields but also in the yield of early melons. (See Table 2).

In 1959 and 1960, respectively 75% and 65% of the total yield were obtained with the first two harvests when 30% of the fertilizer nitrogen was organic. This was 18% higher in 1959 and 17% higher in 1960 than the second best treatment.

From an economic standpoint, this increase in early yields is important because in many seasons melons from the early harvests demand higher prices.

Vine vigor, as well as yield, was directly related to nitrogen source.

Plants receiving part of their nitrogen from organics produced vigorous vine growth, while sodium nitrate produced poor growth. Ammonium sulfate and ammonium nitrate were intermediate in this respect.

Differences in vine vigor were most apparent during the early part of the season. The growth of plants receiving all inorganic nitrogen consistently lagged behind that of plants receiving some organic nitrogen.

However after the main vine attained a length of several feet, vegetative growth of plants fertilized with ammonium sulfate and ammonium nitrate increased. Throughout the remainder of the season, the growth was fairly vigorous.

Vegetative growth with sodium nitrate was much less vigorous than with the other nitrogen sources throughout the season.

In general, the yield differences between treatments were due to the differences in vine vigor—not to the failure to set or to develop melons.

Even with sodium nitrate, once the vines had reached a certain size, fruit began to set and these melons developed to maturity with no apparent abnormalities with respect to either size or quality.

However, as reflected in the yields, the number of melons set by plants fertilized with all inorganic nitrogen was less.

TABLE 1
Effect of Nitrogen Source on Yield of Marketable Watermelons

Nitrogen Source	*Tons/Acre*		*Melons/Acre*	
	1959	1960	1959	1960
4-8-8, 30% org. N	36.0	39.4	3,212	3,614
Ammonium sulfate	27.2	19.3	2,633	2,037
Ammonium nitrate	23.6	8.9	2,414	878
Sodium nitrate	18.7	2.8	1,784	299

TABLE 2
Effect of Nitrogen Source on Early Yield of Marketable Watermelons (Tons/Acre)

Nitrogen Source	*1959 Harvest*		*% of Total Yield*	*1960 Harvest*		*% of Total Yield*
	1st	*2nd*		*1st*	*2nd*	
4-8-8, 30% org. N.	9.4	17.4	75	7.1	18.5	65
Ammonium sulfate	5.6	10.0	57	0.4	4.2	24
Ammonium nitrate	1.0	11.4	52	0.6	2.7	48
Sodium nitrate	0.6	7.4	43	0.0	0.3	11

Liver Fluke Spreading in Florida

LIVER FLUKE is each year becoming more widespread on Florida ranches. About $150,000 annually is lost by condemnation of livers in state and federally-inspected slaughter houses.

So warns Dr. C. B. Plummer, veterinarian with the Florida Agricultural Extension Service. He reveals:

Certain areas of Florida have long been infested with liver flukes. In recent years, however, the infestation has spread to many areas that once were free of liver flukes.

Sweet soil, snails, and an infected cow are necessary for the spread of liver flukes from one area to another. The snail is an intermediate host in the life cycle of the liver fluke which is found only in "sweet" soils (i.e., those with a pH of 6 to 7.8).

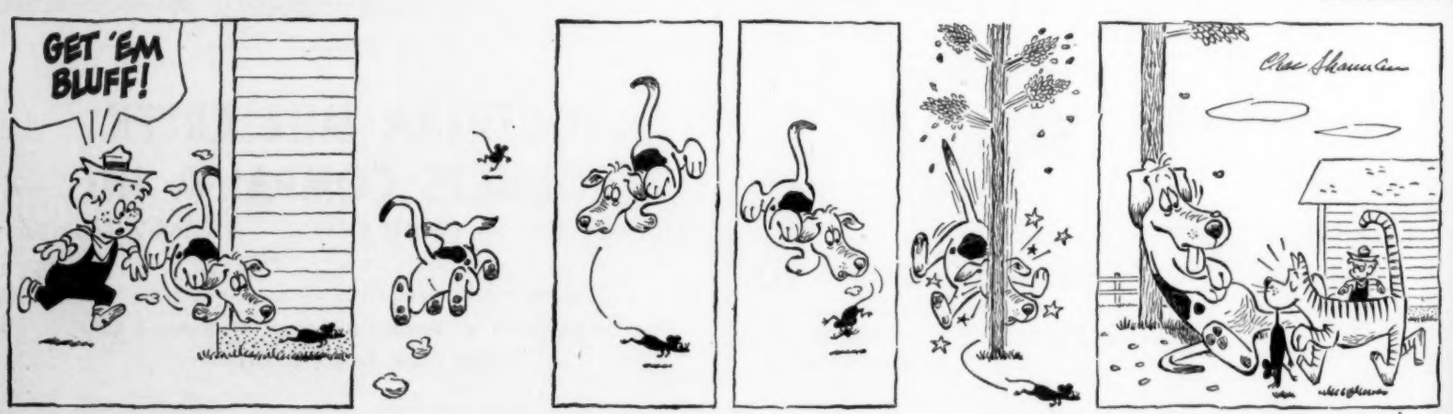
To sweeten soils, lime and dolomite are applied. While this is necessary for better crops and forages, it also sets the stage for liver fluke infestation.

Liver flukes can be controlled by destroying the snail and by destroying the adult fluke in the cow, according to Dr. Plummer. Hexachloroethane is the drug used to destroy flukes in the cow.

Information on how to control snails and treat cows for flukes can be obtained from local veterinarians, county agents, or the Florida Agricultural Extension Service, Gainesville.

"To keep from bringing infection in with replacement animals that originate in fluke-infested areas," Dr. Plummer advises, "worm the animal at least twice, 21 days apart, before turning them into your pasture."

THUMMER GREEN — — *- - - SHARMAN*



Fertilizing Vegetables *(Continued from Page 11)*

much as possible the fluctuation or imbalances described above.

In order to obtain the maximum yield and quality, control of diseases, insects and water is an absolute necessity.

Elimination of the above-mentioned negative factors cannot increase yields or quality. But it is a necessary measure to preserve what potential production is being sought.

With any particular type of culture (ground, staked, trellised or hydroponic), there is a potential practical maximum to attain both in yield and quality; as that maximum is approached, the cost per unit produced is proportionately reduced. Therefore those growers who intend to remain in business and operate a system of free enterprise can only seek to attain that maximum.

Five tons of a 4-2-8 fertilizer plus secondaries and minors is the minimum requirement to produce 100,000 pounds of tomatoes. This amount remains the same regardless of whether they are grown on one acre or 10 acres.

However, growing 100,000 pounds on one acre requires much more of a concentrated effort to provide optimum conditions for good production, including an optimum nutrient concentration and balance in the effective root zone during the entire growing season.

Choice of a particular type of culture (ground to hydroponic) is mainly an increase in the cost of production with an accompanying potential maximum yield and quality increase. Certain systems would be better adapted to particular areas, for specialized markets, and for particular growers.

The major portion of the preceding discussion deals with tomatoes. However, the same basic concepts would also hold for most vegetable crops.

Recent research with irrigated watermelons has indicated that on an acre basis, plant populations along with fertilizer levels can be increased substantially to result in much larger yields.

Sandy soils are generally considered low in fertility. Actually, though, the potential production per acre is as high—if not higher—than in even the most fertile soils.

Florida certainly could produce more vegetables per acre. Too, an associated improved quality could increase consumption.

With all the sandy soils not now being utilized, the potential production at this time is unlimited.

* * *

Inspection Service

CONTINUOUS USDA inspection services offered for fresh fruits and vegetables, as an aid to the marketing of these products, are described in a folder recently published by the federal agency.

Designed primarily for potential users of the service, the booklet explains how the program works. It also points out the service's benefits to both users and to consumers who buy fruits and vegetables which have been continuously inspected under the program.

Free copies of "Continuous Inspection for Fresh Fruits and Vegetables", AMS-404, are available. Requests should be addressed to: Marketing Information Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C.

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many vegetables. For correct usage and best results, consult your local Kilgore Seed Company representative.

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Citrus CLOSE-UPS

By FRED P. LAWRENCE
Citriculturist
Florida Agricultural Extension Service

Some Aspects of Pruning

It is often stated that of all the grove management operations employed by citrus growers, the one least agreed upon is pruning. Current practices vary from no pruning whatever through training, hedging, and topping to regular annual prunings. The thoroughness or degree of pruning in Florida is almost as varied as the grove operators themselves.

Most growers agree that from the standpoint of good horticultural practices, summer is not the preferred time to prune. During this season, though, the necessary labor is available. So summertime has become the time to prune citrus in Florida.

Pruning practices in Florida are changing rapidly and drastically. Not too long ago, this was a horticultural practice most growers were greatly concerned with. They pruned to form the "frame work" of the tree.

Limbs that grew in such a manner as to rub or bind others were removed. Water sprouts were pruned; trees were braced; all dead, diseased, or undesirable branches were removed.

Most growers took great pride in executing the best and smoothest cuts and in carefully selecting and applying a wound dressing to each.

Now, however, this has changed. Labor costs have risen and grower attitudes have changed to the degree that pruning is now confined to the removal of dead or broken limbs . . . usually with power equipment in the hands of laborers who often are not properly trained in the horticultural aspects of pruning.

Since these rough, uneven cuts seldom heal, heart-rot results. This type of operation, consequently, usually results in little lasting benefit to the tree.

Even so, many operators feel that it is good business to utilize this operation — that is, get what you can out of a tree and then, when it becomes uneconomical, replace it with a new tree.

The wisdom of this type operation is open to challenge. There is, however, little scientific results to disprove the practice.

It seems to boil down to one's point of view. If the operator is thinking only in terms of the next 10 to 20 years, the less he does the better.

On the other hand, the productive life of a citrus tree is normally much longer than this and better

WIND AND FREEZES are the chief causes of damage which must be pruned out. If neglected or poorly pruned, such trees will be of little future value.

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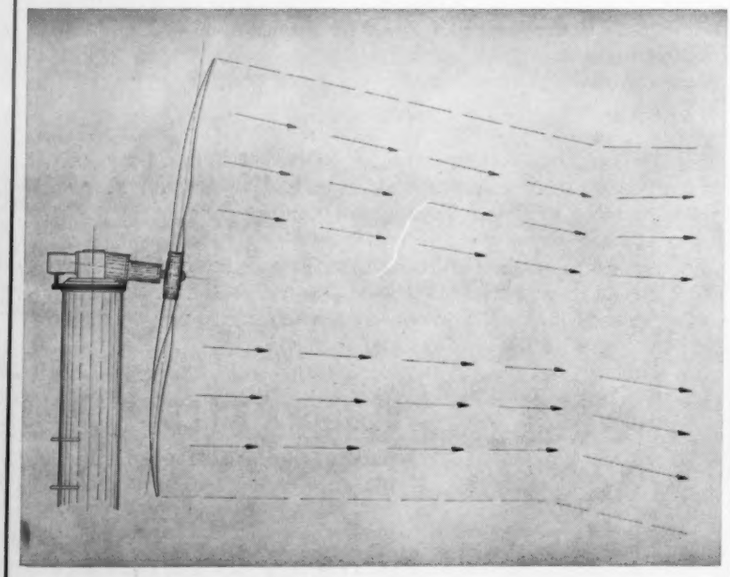

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pruning practices should be rewarding.

The underlying principle of good pruning is to take advantage of natural growth tendencies of the tree so that wounds may heal over in the shortest possible time.

More meristematic tissue is to be found at the junction of the branches than anywhere else on the tree. So this is the logical place to cut.

The larger the wound, the longer the time required for it to callus over. And the longer it must be protected.

A wound that is most nearly flush with the adjacent bark surfaces heals most rapidly. On large branches it may be necessary to make a preliminary cut to remove the branch and then a second cut to bring the wound surface to the desired flush condition.

Usually it is desirable to make a first cut underneath the branch and a finishing cut from above. This is done to prevent splitting of the wood or tearing of the bark.

Double cuts such as these should always be smoothed off.

Making a properly executed cut is only half of the job if lasting results are expected. It is equally essential that the cut be treated with a suitable wound dressing.

If healthy wood has been removed, it will be sufficient to treat the cut surface with an asphalt emulsion pruning-paint. Most of these paints can be thinned with water and applied at any desired consistency.

Wound dressings are used primarily to seal and protect the cut surface from moisture and wood-rotting fungi. Due to lack of understanding on the part of many operators, these paints are often thinned excessively.

Consistency of the wound dressing should be neither too thin nor too thick. A thin, watery paint may cover more area but its protective value is usually rather short-lived. Wound dressings that are too thick, on the other hand, may not adhere to the wound sufficiently to form a water-tight seal.

An ideal dressing is one that remains slightly plastic, seals the wound, yet permits the expansion and growth of callus tissue.

The same is true for compounds used to fill cavities in trees. Often home owners or growers will have a specimen tree which has a decayed area that needs to be filled.

Cement or other materials which, after application, set up and become hard are usually a waste of time and materials. As the tree grows, the material cracks, water enters and the problem is still there.

Most asphalt emulsion compounds thoroughly mixed with sawdust or other inexpensive "filler" are much more satisfactory. They will give with the growth yet the cavity will remain tightly sealed.

Where diseased wood has been

(Continued on Page 33)

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'Highest Price Ever' Paid for 1960-61 Florida Oranges

The Florida orange grower got more money for his fruit on the tree during the season just closed than ever before. And, although the crop was not as big as some in the past, this record-breaking price per box made the total returns the largest in history.

Preliminary figures show that oranges, all kinds and regardless of what they were used for, brought an average of $2.98 per box of 1-3/5 bushels on the tree.

Based on a crop of 87 million boxes, as forecast by the U. S. Department of Agriculture, the total on-tree value of the 1960-61 orange crop was slightly more than $259 million.

It cost between 75 and 80 cents a box to grow oranges, according to the Florida State Marketing Bureau. Using the higher figure for last season, the grower made an average profit of $2.18 per box on the tree on his oranges, not including any allowance for taxes.

Statistically at least, this meant orange growers made a total profit of just under $190 million on their oranges last season.

Of the 87 million boxes of oranges harvested, frozen concentrators used 56 million boxes. This also set a new record.

Concentrators paid approximately $167 million on the tree for their oranges. This amounted to almost $195 million delivered at their plants.

The average delivered price for concentrate oranges was $3.47 per box, according to the Florida Canners Association.

Grapefruit growers did not fare as well. On the other hand, they did not do as badly as some had expected.

Earlier there had been considerable talk about the terrible grapefruit deal. However, statistics based on averages indicate a season somewhat less prosperous for the grower than the previous three years but still a whole lot better than many past years.

Lumping all varieties for all types of utilization and including Indian River and other premium areas, the average return to the grower on-tree for grapefruit was 93 cents per box. This average price represents $1 per box for seedless fruit and 82 cents for seeded.

The average return of 93 cents per box meant a total on-tree return of slightly more than $29.5 million for the 31.8 million boxes harvested.

Reflecting the freeze of 1957-58, on-tree prices for grapefruit had averaged a few pennies over $1 a box for the previous three seasons. Nevertheless, the 1960-61 average of 93 cents is far above most of the seasons before that.

Based on a cost of production of 65 cents, the 93-cent average on-tree price for grapefruit represents a statistical profit of 18 cents per box.

On the crop of 31.8 million boxes, this meant a profit to the grower at the grove level of just under $5,750,000 on the season's harvest, before allowing anything for taxes.

For the second time in Florida's citrus history, more grapefruit was sold in fresh form than oranges. Approximately 14.3 million boxes of grapefruit went to the fresh market, compared with 13 million boxes of oranges.

The only other time this happened was in 1958-59, when more than 15 million boxes of grapefruit were shipped fresh, compared with slightly more than 13 million boxes of oranges.

The high price which concentrators were willing to pay for oranges kept the fresh market price correspondingly inflated and the movement in fresh form at a low level.

The $3.47 delivered price which concentrators averaged for oranges during the season just ended compares with $2.54 in 1959-60 and $3.50 in 1958-59. Concentrators used only 52 million boxes in each of those two past seasons, however, compared with the record-breaking 56 million boxes in 1960-61.

Concentrators paid $132 million for their oranges delivered at their plants in 1959-60 and $182 million in 1958-59, compared with almost $195 million last season.

Last season's total on-tree orange return of slightly more than $259 million is substantially better than the $178.9 million received by orange growers in 1959-60. And it's a little higher than the previous record of $247.5 million established in the 1958-59 season.

In size, Florida's 1960-61 orange crop of 87 million boxes is far from a record. The grapefruit crop of 31.8 million boxes also was mediocre from a statistical standpoint.

The all-time high in orange production came in the 1956-57 season, with a harvest of 93 million boxes. There also have been three other seasons when production exceeded 90 million boxes.

Last season's grapefruit crop was bigger than 1959-60, when 30.5 million boxes were harvested . On the other hand, it was less than most of the last 15 seasons.

Florida produced its biggest grapefruit crop in 1953-54. That year's industry shaking total was 42 million boxes.

While all of these statistics are preliminary, they will not show much variation from the official figures released later in the year by the several citrus agencies which keep all kinds of records.

Tangerine growers who sold their fruit for shipment to the fresh market fared reasonably well during the past season, receiving an average of $2.13 per 1-3/5 bushels on the tree. Approximately 3 million boxes of the crop were sold for this market.

As usually happens, however, processors paid almost nothing for the tangerines they used. In fact, they bought 1.5 million boxes at the salvage price of 19 cents per box.

Nineteen cents per box is admittedly low. Just the same, it is still better than some past seasons when tangerines used by processors represented an actual loss to the grower.

The over-all tangerine price, weight averaging the two methods of sale, was $1.44 per box on the tree.

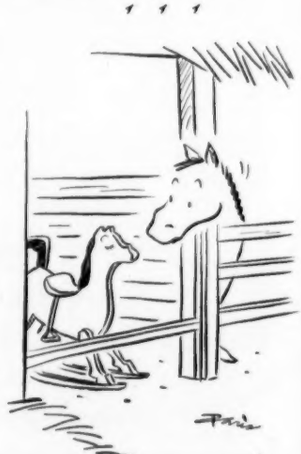
* * *

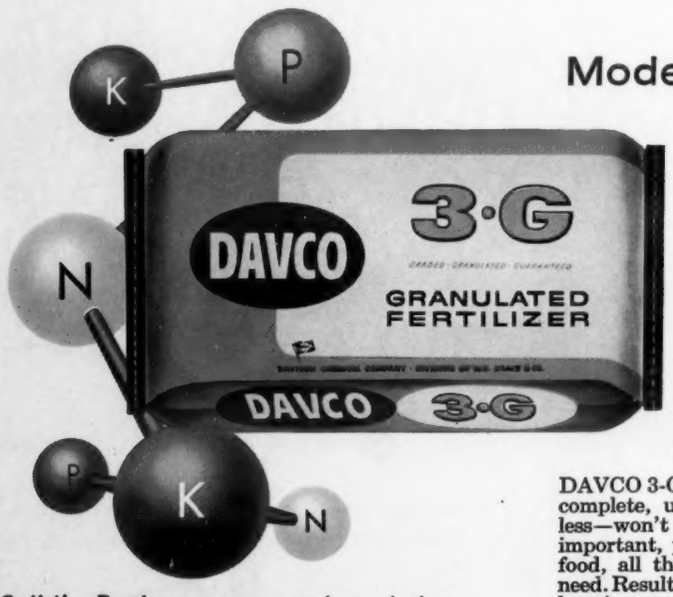
Processors to Meet

The 12th annual Citrus Processors' meeting will be held on Tuesday, September 19th at the University of Florida Citrus Experiment Station, Lake Alfred.

As in the past, reports will be presented by personnel of the Citrus Experiment Station and the Florida Citrus Commission. These reports will cover information obtained during the past year concerning both applied and basic research related to citrus processing and by-products problems.

* * *





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Agricultural economists predict:

Lower Hog and Beef Prices

Both hog and beef prices will be less this fall than they were at the same time last year, predict economists with the Florida Agricultural Extension Service.

In their report made public in mid-July, the economists also discussed the outlook for summer hog and beef prices. They base their fall price decline forecast on increased numbers of hogs and increased production of beef, broilers, lamb, and turkeys.

Looking at the overall hog picture, the economists saw it this way:

"Prices this summer are likely to be very close to those of last summer. Prices this fall are likely to show a decline.

"With increased farrowings and competition from other meats, hog prices this November-December will probably be $14.50 to $16, compared to over $17.50 last November-December."

Turning to beef, the economists state in their report:

"Slaughter cattle prices have been weaker this year. Improving economic conditions for the last half of 1961 will be a plus factor for beef.

"Both stocker and feeder prices will show seasonal declines. Prices this summer and fall may not vary much from those of last year.

"However, severe weather changes would result in marketing and price changes. Also, the price of corn and the new feed grain program could affect prices."

The new feed grain program was a big question mark on both reports. The economists warn:

"At present, farmer intentions toward the new feed grain program are not available. This program could be a factor in long-range planning and should be watched closely.

"Market supplies and prices," the economists point out, "will be affected by farmer participation and by government sales policy for feed grain."

* * *

Standby Power

(Continued from Page 23)

have definite requirements, such as a double-throw disconnect switch. This is required because without it you could start your generator and feed current into the high line.

When the current is fed through the transformer backwards, it would be stepped up and put high voltage on the main line. This could be fatal to a lineman doing repair work.

Furthermore, this double-throw switch prevents any possibility of high line current damaging your generator.

To answer your questions on standby power, a new bulletin is available. It is "Standby Electric Power Equipment for the Farm", USDA Leaflet No. 480.

You may obtain a copy of this bulletin from your county agent or by addressing a request to A. M. Pettis, Associate Agricultural Engineer, Florida Agricultural Extension Service, University of Florida, Gainesville.

Further information on standby power equipment may be obtained from your county agent or your local power supplier.

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SEVERE HEART-ROT shown here resulted from poor, uncared-for pruning cut. The decayed "stump" can be seen through the upright limbs.

Citrus Close-Ups *(Continued from Page 29)*

removed — such as in the treatment of footrot, gummosis, etc. — it will be necessary to coat the surface with a good, penetrating disinfectant. Avenarius carbolenium is one of the best materials for the purpose.

Wounds treated with carbolenium should be allowe d to dry from 30 minutes to 30 days, depending on the operation, before applying a final protective coating of asphalt emulsion.

There was a time when a saw, an ax, and the will to get the job done were all the equipment available. Today, however, there is a wide selection of power tools.

Now the job is selecting the equipment best suited to the grower's needs. Agricultural Extension Service Circular 211 "Small Power Tools for Pruning Citrus" was written for the purpose of helping growers to select suitable tools.

Circular 211 may be obtained from your local County Agent's office or by writing the Agricultural Extension Service, University of Florida, Gainesville.

* * *

Imperial Polk, one of Florida's largest counties, was founded February 8, 1861. In observance of this event, Polk will hold a centennial celebration throughout 1961.

Highlighting the year-long program will be an outdoor drama. This will be held in the 3,500-seat ampitheater at Peach River Park.

* * *

? How smart are YOU? ?

(Answers to Questions On Page 2)

1. Prior to 1959, the answer would have been Key West. Now, however, it is Ka Lae, Hawaii.

2. A roaring snoring.

3. The difference between the cost price and the selling price.

4. An improvised accompaniment.

5. "Under the rose"; i.e., in strict confidence.

6. Bad wares would not be sold.

7. One designed to be read and not acted.

8. No, many different trees supply wood which is marketed as mahogany.

9. Balance achieved by like arrangements on both sides.

10. Yes, after it molts.

FFVA Changes Meeting Site

Changing its headquarters, Florida State Horticultural Society will hold its 74th annual meeting October 30-November 2 at the Barcelona Hotel, Miami Beach.

Originally, the meeting was scheduled to be held at the Diplomat Hotel, Miami Beach. Dr. Ernest L. Spencer, secretary of the Society, last month explained:

"The change of meeting place was necessary due to conflicting meetings scheduled at the Diplomat Hotel in violation of a signed contract which had assured the Horticultural Society the exclusive use of the entire convention facilities of the Hotel."

"However," added Dr. Spencer, "the dates remain the same."

Copies of the preliminary program for the annual meeting will be ready for distribution about September 15th. FLORIDA GROWER AND RANCHER will keep readers posted on all plans.

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